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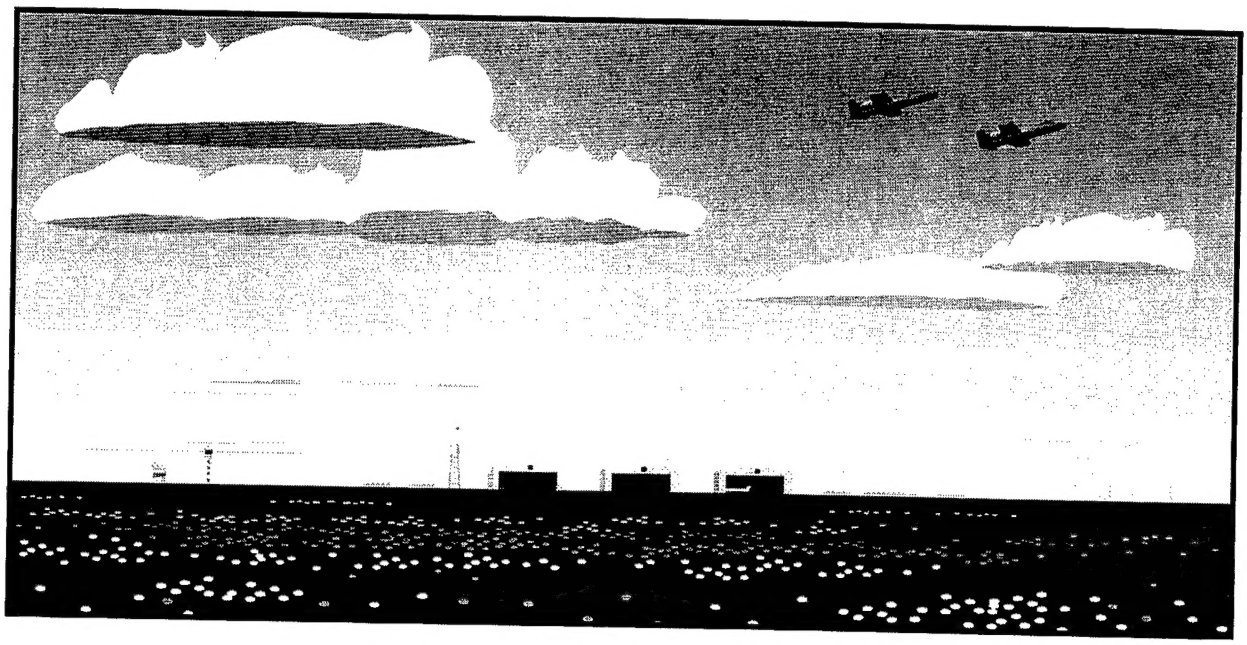
McClellan Air Force Base

Evaluation of Elastomeric Polymer Filter Media



Technology Demonstration Technical Memorandum

FINAL
Volume II: Appendices

DECEMBER 1995

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REQUEST FOR SCIENTIFIC AND TECHNICAL REPORTS

Title AFCEE Collection

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EVALUATION OF ELASTOMERIC POLYMER FILTER MEDIA TECHNOLOGY DEMONSTRATION TECHNICAL MEMORANDUM

VOLUME II

FINAL

PREPARED FOR:

McCLELLAN AIR FORCE BASE/EMR
5050 DUDLEY BOULEVARD, SUITE 3
McCLELLAN AFB, CALIFORNIA 95652-1389

12 December 1995

PREPARED BY:
Radian Corporation
10389 Old Placerville Road
Sacramento, California 95827

USAF CONTRACT NO. F04699-93-D-0018/8025
CONTRACTOR CONTRACT NO. 602-125, DELIVERY ORDER NO. 8025

United States Air Force
Sacramento Air Logistics Command Environmental Management and Restoration
McClellan AFB, California 95652-1036

APPENDIX A

Analytical Data Sheets

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509057A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	7960
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/7/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/14/95	**AMOUNT$:**	$205.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY VN 315-001	TO-14	3.0 "Hg	$205.00
02A	Method Spike	TO-14	NA	NC
03A	Lab Blank	TO-14	NA	NC

9/26/95 one gone TCE 3+

CERTIFIED BY: Isabella C. Cuneo
for Laboratory Director

DATE: 9/14/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY VN 315-001

ID#: 9509057A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name: 5090807 **Date of Collection:** 9/7/95

Dil. Factor: 2200 **Date of Analysis:** 9/8/95

Analyst's Initials: BM

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1100	Not Detected
1,1-Dichloroethene	1100	Not Detected
Freon 113	1100	Not Detected
cis-1,2-Dichloroethene	1100	26000 ✓
Chloroform	1100	2600 ✓
1,1,1-Trichloroethane	1100	Not Detected
Benzene	1100	5000 ✓
Trichloroethene	1100	1200000 E ✓ J+
Toluene	1100	1900 ✓
Tetrachloroethene	1100	Not Detected
m,p-Xylene	1100	7500 ✓
o-Xylene	1100	6900 ✓
Acetone	4400	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	82	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	81	70-130

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509057A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5090802 / 5090803**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/8/95**	
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	76
1,1-Dichloroethene	0.50	96
Freon 113	0.50	106
cis-1,2-Dichloroethene	0.50	107
Chloroform	0.50	99
1,1,1-Trichloroethane	0.50	101
Benzene	0.50	102
Trichloroethene	0.50	127
Toluene	0.50	120
Tetrachloroethene	0.50	114
m,p-Xylene	0.50	94
o-Xylene	0.50	99
Acetone	2.0	70

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**87 / 83**	**70-130**
Toluene-d8	**98 / 99**	**70-130**
4-Bromofluorobenzene	**84 / 84**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509057A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5090806**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/8/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**86**	**70-130**
Toluene-d8	**95**	**70-130**
4-Bromofluorobenzene	**79**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509057 AL
1008

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
MCCLELLAN POLYMER	AIR TOXICS LTD
CONTRACT NAME: D[illegible]R025	180 BLUE RAVINE RD
CHARGE NUMBER: 602-125-8010	[illegible]

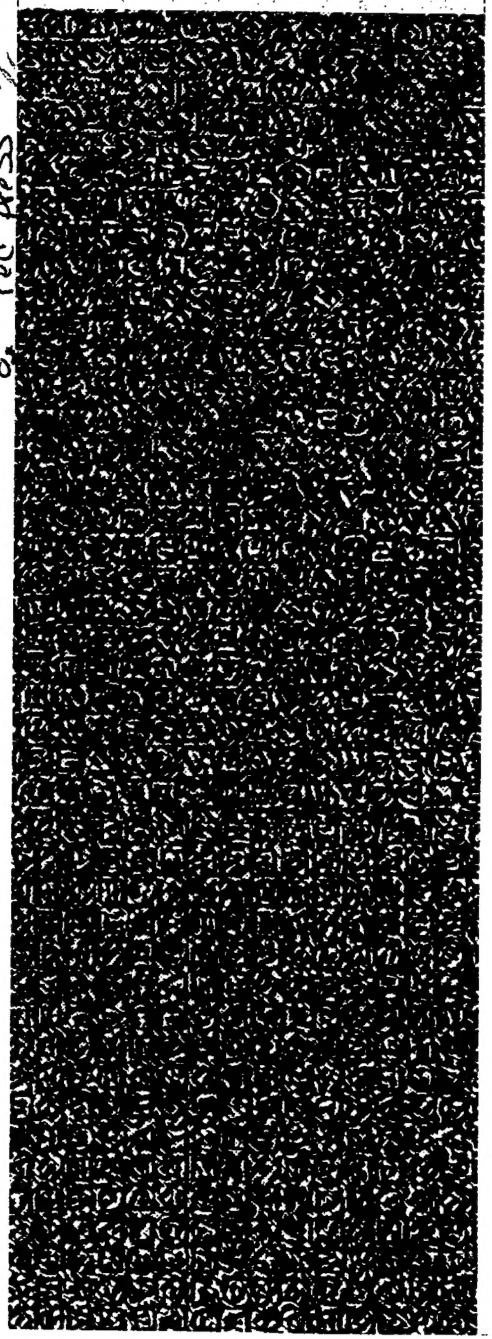
SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL'S INITIALS
POLYVN315	09/07/95	1320	CGR	1	1 L	V	NONE	TO 14 AND VC			
-001								PREFRACTIONATION			

RELEASED BY	DATE	TIME
[signature]	9/7/95	4:43
RECEIVED BY	DATE	TIME
[signature]	9/8/95	8:00
	/ /	:
	/ /	:
	/ /	:
	/ /	:
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

COMMENTS: Condition when received good
Custody Seal intact? Y N None Temp. Ambient

RELINQUISED BY	DATE	TIME
[signature]	9/8/95	8:30
	/ /	:
	/ /	:
	/ /	:
CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509057B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	7960
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/7/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/14/95	**AMOUNT$:**	$50.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY VN 315-001	Mod. Method 18	3.0 "Hg	$50.00
02A	Method Spike	Mod. Method 18	NA	NC
03A	Lab Blank	Mod. Method 18	NA	NC

9/26/95

CERTIFIED BY: Isabella C. Cuevas for Laboratory Director

DATE: 9/14/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY VN 315-001	9509057B-01A	A090817	9/7/95	Vinyl Chloride	2.2	110	3100
Lab Blank	9509057B-03A	A090816	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							**% Recovery**
Method Spike	9509057B-02A	A090814	NA	Vinyl Chloride	1.0	50	97

Analysis Date: 9/8/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509057 B
1008

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
McCLELLAN LANDFILL	AIR TOXICS LTD
CONTRACT NAME: P.O. 8025	180 BLUE RAVINE RD
CHARGE NUMBER: 602-125-8010	SUITE B, FOLSOM, CA 95630

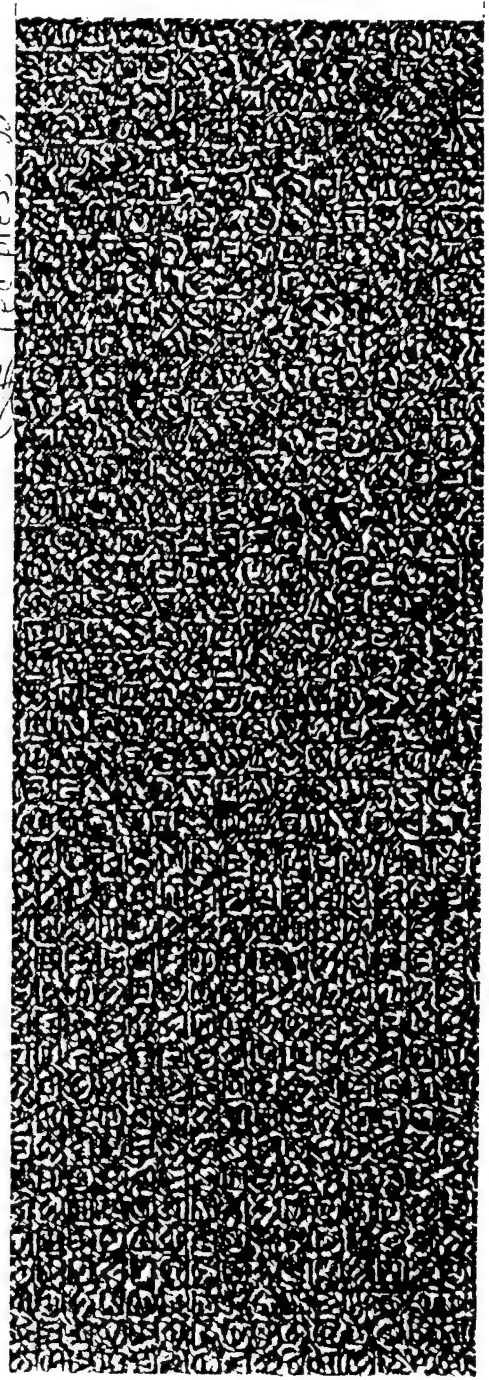
SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
MCLFVN315	04/07/95	1320	CEK	1	1 L	V	NONE	TO-14 AND VC			
-001								PREFRACTIONATOR			

RELEASED BY	DATE	TIME
[illegible]	9/19/95	4:15
RECEIVED BY	DATE	TIME
[illegible]	/ /	:
Karen Edmond ATL	9/18/95	800
	/ /	:
	/ /	:
	/ /	:
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

COMMENTS: Condition when received good
Custody Seal Intact? Y N (None) Temp. Ambient

RELINQUISED BY	DATE	TIME
[illegible] Ingals	9/19/95	9:00 am
	/ /	:
	/ /	:
	/ /	:
CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509097A

Work Order Summary

CLIENT: Ms. Carol Kontonickas
Radian Corporation
10389 Old Placerville Road
Sacramento, CA 95827

BILL TO: Subcontracts Payable
Radian Corporation
P.O. Box 201088
Austin, TX 78720-1088

PHONE: 916-857-7448
FAX: 916-362-2318
DATE RECEIVED: 9/13/95
DATE COMPLETED: 9/22/95

INVOICE # 8033
SUBCONTRACT # S00256066
PROJECT # 602-125-80-10 McClellan Polymer
AMOUNT$: $410.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN 002	TO-14	6.5 "Hg	$205.00
02A	POLY AEN 003	TO-14	6.5 "Hg	$205.00
03A	Method Spike	TO-14	NA	NC
04A	Lab Blank	TO-14	NA	NC

S
9/27/95
2 samples VC
J+
Spike out
high

CERTIFIED BY: Linda S. Truman
Laboratory Director

DATE: 9/22/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY AIN 002

ID#: 9509097A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091308**	**Date of Collection:**	**9/12/95**
Dil. Factor:	**3200**	**Date of Analysis:**	**9/13/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1600	2900
1,1-Dichloroethene	1600	Not Detected
Freon 113	1600	Not Detected
cis-1,2-Dichloroethene	1600	19000
Chloroform	1600	2200
1,1,1-Trichloroethane	1600	Not Detected
Benzene	1600	4300
Trichloroethene	1600	660000 E
Toluene	1600	1800
Tetrachloroethene	1600	Not Detected
m,p-Xylene	1600	6900
o-Xylene	1600	5300
Acetone	6400	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**99**	**70-130**
Toluene-d8	**108**	**70-130**
4-Bromofluorobenzene	**101**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN 003

ID#: 9509097A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091309**	**Date of Collection:**	**9/12/95**
Dil. Factor:	**570**	**Date of Analysis:**	**9/13/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	290	2000 J+
1,1-Dichloroethene	290	390
Freon 113	290	Not Detected
cis-1,2-Dichloroethene	290	3500
Chloroform	290	700
1,1,1-Trichloroethane	290	Not Detected
Benzene	290	Not Detected
Trichloroethene	290	71000
Toluene	290	Not Detected
Tetrachloroethene	290	Not Detected
m,p-Xylene	290	Not Detected
o-Xylene	290	Not Detected
Acetone	1100	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	**% Recovery**	**Method Limits**
Octafluorotoluene	**110**	**70-130**
Toluene-d8	**117**	**70-130**
4-Bromofluorobenzene	**105**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509097A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091302**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/13/95**	
Analyst's Initials:	**DP**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	138 Q
1,1-Dichloroethene	0.50	108
Freon 113	0.50	108
cis-1,2-Dichloroethene	0.50	106
Chloroform	0.50	102
1,1,1-Trichloroethane	0.50	102
Benzene	0.50	112
Trichloroethene	0.50	97
Toluene	0.50	102
Tetrachloroethene	0.50	91
m,p-Xylene	0.50	93
o-Xylene	0.50	98
Acetone	2.0	101

Q = Exceeds Quality Control limits.

Container Type: NA

Surrogates	**% Recovery**	**Method Limits**
Octafluorotoluene	**96**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**104**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509097A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091305**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/13/95**
Analyst's Initials:	**DP**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**93**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**97**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

TASK OR SUB TASK (one per form): POLYMER EVALUTION	LABORATORY NAME & ADDRESS: AIR TOXICS LTD.
CONTRACT NAME: McCLELLAN	180 BLUE RAVINE ST SUITE B
CHARGE NUMBER: 602 125 · 80 · 10	FOLSOM CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL INITIALS
01A	POLY AIN0002	9/12/95	1615	CGL	1	1 LITER	V	NONE	TO-14 + PREFRAC		60 days	
02A	POLY AEN0003	9/12/95	1615	CGL	1	1 LITER	V	NONE	TO-14 + PREFRAC		60 days	

RELEASED BY	DATE	TIME
[illegible]	9/13/95	7:[illegible]

RECEIVED BY	DATE	TIME
[illegible]	9/13/95	[illegible]
	/ /	:
	/ /	:
	/ /	:
[illegible]	9/13/95	8:05

RELINQUISED BY	DATE	TIME
Michael E. Hayes	9/12/95	8:05
	/ /	:
	/ /	:
	/ /	:
	/ /	:

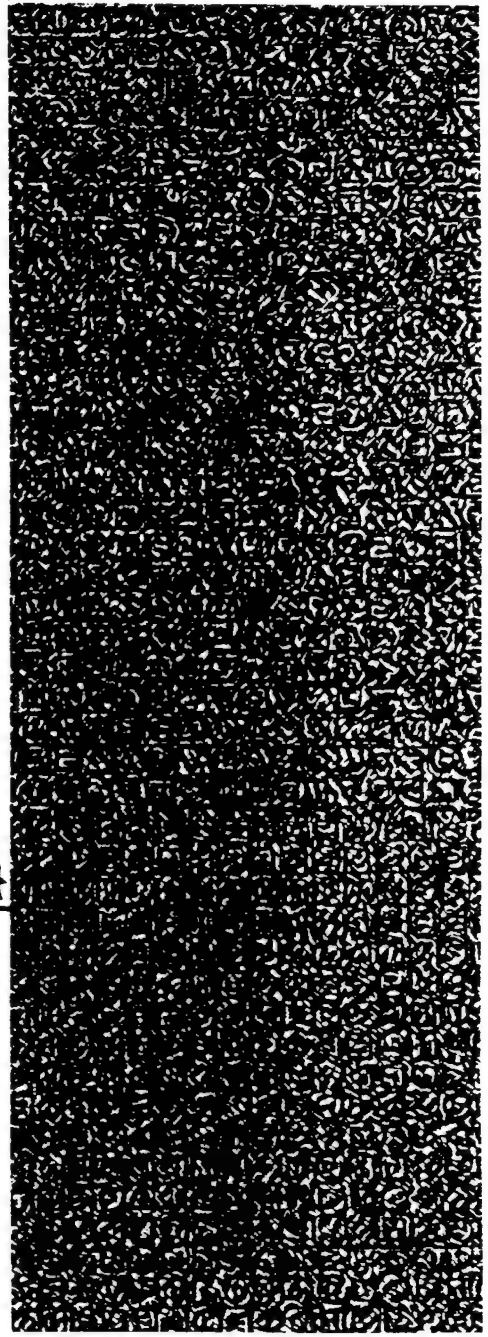
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

COMMENTS: Custody Seal intact? Y N None (NA) Temp. Ambient
Condition when received: good Hand Delivered

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

TAKE TWO FOR COMES



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509097B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8033
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/13/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/22/95	**AMOUNT$:**	$100.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN 002	Mod. Method 18	6.5 "Hg	$50.00
02A	POLY AEN 003	Mod. Method 18	6.5 "Hg	$50.00
03A	Method Spike	Mod. Method 18	NA	NC
04A	Lab Blank	Mod. Method 18	NA	NC

9/27/95
dlc

CERTIFIED BY: Linda D Fruman
Laboratory Director

DATE: 9/22/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY AIN 002	9509097B-01A	A0913005	9/12/95	Vinyl Chloride	2.6	130	3700
POLY AEN 003	9509097B-02A	A0913006	9/12/95	Vinyl Chloride	2.6	130	4000
Lab Blank	9509097B-04A	A0913002	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							% Recovery
Method Spike	9509097B-03A	A0913001	NA	Vinyl Chloride	1.0	50	108

Analysis Date: 9/13/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

4564978

1009

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
POLYMER EVALUTION	AIR TOXICS LTD.
CONTRACT NAME: McCLELLAN	180 BLUE RAVINE RD SUITE B
CHARGE NUMBER: 602-125-80-10	FOLSOM CA 95630

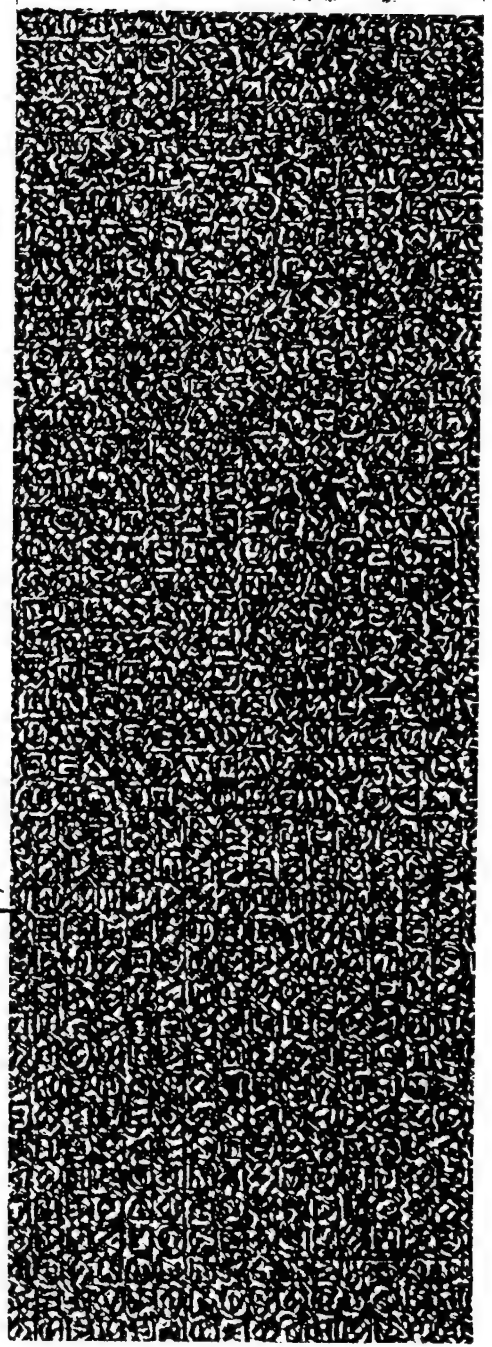
SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
POLY AEN002	9/12/95	1615	CGK	1	1 LITER	V	NONE	TO-14 + PREFRAC		6.5" Hg	
POLY AEN003	9/12/95	1615	CGK	1	1 LITER	V	NONE	TO-14 + PREFRAC		6.5" Hg	

RELEASED BY	DATE	TIME
[illegible]	9/13/	:
RECEIVED BY	DATE	TIME
[illegible]	9/13/95	:
	/ /	:
	/ /	:
	/ /	:
[signature] MTL	9/13/95	8:05
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

COMMENTS: Custody Seal intact? Y N None (NA) Temp. Ambient
Condition when received: good — Hand Delivered

RELINQUISED BY	DATE	TIME
Chelsea E. Mayes	9/13/95	8:05
	/ /	:
	/ /	:
	/ /	:
	/ /	:
CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509107A

Work Order Summary

CLIENT: Ms. Carol Kontonickas
Radian Corporation
10389 Old Placerville Road
Sacramento, CA 95827

BILL TO: Subcontracts Payable
Radian Corporation
P.O. Box 201088
Austin, TX 78720-1088

PHONE: 916-857-7448
FAX: 916-362-2318
DATE RECEIVED: 9/14/95
DATE COMPLETED 9/22/95

INVOICE # 8034
SUBCONTRACT # S00256066
PROJECT # 602-125-80-10 McClellan Polymer
AMOUNT$: $820.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN 004	TO-14	5.5 "Hg	$205.00
02A	POLY AEN 005	TO-14	6.0 "Hg	$205.00
03A	POLY AEX 006	TO-14	5.5 "Hg	$205.00
04A	POLY AEN 007 *	TO-14	5.5 "Hg	$205.00
05A	Method Spike	TO-14	NA	NC
06A	Lab Blank	TO-14	NA	NC

9/22/95
one sample
TCE, VC
flagged.

CERTIFIED BY: Linda S. Frueman
Laboratory Director

DATE: 9/22/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY AIN 004

ID#: 9509107A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091407**	**Date of Collection:**	**9/13/95**
Dil. Factor:	**4900**	**Date of Analysis:**	**9/14/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	2500	Not Detected
1,1-Dichloroethene	2500	Not Detected
Freon 113	2500	Not Detected
cis-1,2-Dichloroethene	2500	23000
Chloroform	2500	2700
1,1,1-Trichloroethane	2500	Not Detected
Benzene	2500	4700
Trichloroethene	2500	780000
Toluene	2500	Not Detected
Tetrachloroethene	2500	Not Detected
m,p-Xylene	2500	7900
o-Xylene	2500	6400
Acetone	9800	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**104**	**70-130**
Toluene-d8	**105**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN 005

ID#: 9509107A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091408**	**Date of Collection: 9/13/95**	
Dil. Factor:	**2500**	**Date of Analysis: 9/14/95**	
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1300	Not Detected
1,1-Dichloroethene	1300	Not Detected
Freon 113	1300	Not Detected
cis-1,2-Dichloroethene	1300	12000
Chloroform	1300	1300
1,1,1-Trichloroethane	1300	Not Detected
Benzene	1300	1900
Trichloroethene	1300	340000
Toluene	1300	Not Detected
Tetrachloroethene	1300	Not Detected
m,p-Xylene	1300	Not Detected
o-Xylene	1300	Not Detected
Acetone	5000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**108**	**70-130**
Toluene-d8	**109**	**70-130**
4-Bromofluorobenzene	**102**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEX 006

ID#: 9509107A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091409**	**Date of Collection:**	**9/13/95**
Dil. Factor:	**3500**	**Date of Analysis:**	**9/14/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1800	Not Detected
1,1-Dichloroethene	1800	Not Detected
Freon 113	1800	Not Detected
cis-1,2-Dichloroethene	1800	19000
Chloroform	1800	2000
1,1,1-Trichloroethane	1800	Not Detected
Benzene	1800	3200
Trichloroethene	1800	540000
Toluene	1800	Not Detected
Tetrachloroethene	1800	Not Detected
m,p-Xylene	1800	Not Detected
o-Xylene	1800	Not Detected
Acetone	7000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**101**	**70-130**
4-Bromofluorobenzene	**101**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN 007

ID#: 9509107A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091410**	**Date of Collection: 9/14/95**	
Dil. Factor:	**3500**	**Date of Analysis: 9/14/95**	
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1800	2000 J+
1,1-Dichloroethene	1800	Not Detected
Freon 113	1800	Not Detected
cis-1,2-Dichloroethene	1800	26000
Chloroform	1800	2900
1,1,1-Trichloroethane	1800	Not Detected
Benzene	1800	5200
Trichloroethene	1800	900000 E J
Toluene	1800	Not Detected
Tetrachloroethene	1800	Not Detected
m,p-Xylene	1800	Not Detected
o-Xylene	1800	Not Detected
Acetone	7000	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**95**	**70-130**
Toluene-d8	**101**	**70-130**
4-Bromofluorobenzene	**103**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509107A-05A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091402**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/14/95**
Analyst's Initials:	**MPG**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	132 Q
1,1-Dichloroethene	0.50	110
Freon 113	0.50	108
cis-1,2-Dichloroethene	0.50	102
Chloroform	0.50	103
1,1,1-Trichloroethane	0.50	99
Benzene	0.50	112
Trichloroethene	0.50	99
Toluene	0.50	100
Tetrachloroethene	0.50	92
m,p-Xylene	0.50	92
o-Xylene	0.50	98
Acetone	2.0	91

Q = Exceeds Quality Control limits of 70% to 130%.

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**95**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**102**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509107A-06A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091404**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/14/95**
Analyst's Initials:	**MPG**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
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RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509107A

1010

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
DANIEL EVALUATION	AIR TOXICS LTD
CONTRACT NAME: McCLELLAN [illegible]	[illegible]
CHARGE NUMBER: 602-125-9010	[illegible]

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL INITIALS
01A DLY AIN 004	9/11/95	1700	KEL	1	1L	✓	/	TO-14 + HEPTANE		5.5"Hg	
02A DLY AENO05	9/11/95	1200	KEL	1	1L	✓	/	TO-14 [illegible]		6.0"Hg	
03A DLY AEX006	9/11/95	1200	KEL	1	1L	✓	/	TO-14 [illegible]		5.5"Hg	
NOTE ANALYZE SAMPLES 004 & 006											
USING PREFRACTIONATOR ONLY											
IF VINYL CHLORIDE IS DETECTED											
IN SAMPLE 004											

RELEASED BY	DATE	TIME
Kelli A Wheatley	9/14/95	[illegible]
RECEIVED BY	DATE	TIME
[illegible]	9/14/95	[illegible]
	/ /	:
	/ /	:
	/ /	:
Kelli A Wheatley ATL	9/14/95	8:20
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

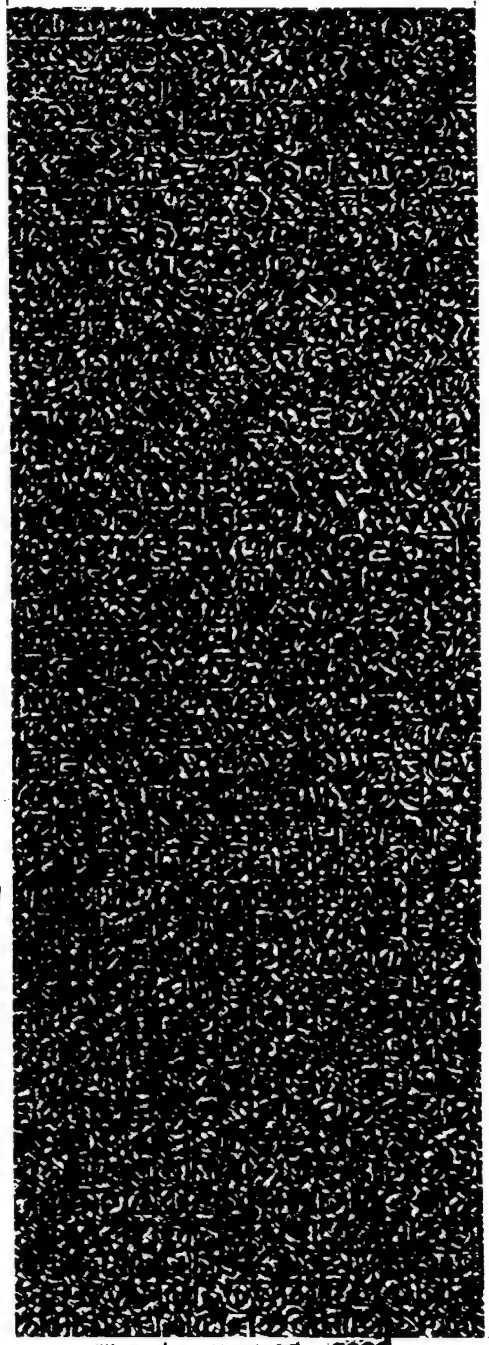
COMMENTS: Condition when received good - Hand Delivered
Custody Seal Intact? Y N None (N/A) Temp. Ambient

RELINQUISED BY	DATE	TIME
Christine E Ingols	9/14/95	8:20
	/ /	:
	/ /	:
	/ /	:
CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal Intact? Y N None (N/A) Temp. Ambient

RADIAN KEEP IN 2 CYCLES



Condition when received good

CHAIN OF CUSTODY RECORD

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

9509107A

1011

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
McAFB POLYMER TS	AIR TOXICS LTD
CONTRACT NAME: DO 8025	180 BLUE RAVINE RD. SUITE B
CHARGE NUMBER: 602-125-80-10	FOLSOM, CA 95630

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL'S INITIALS
AEN 0001	09/14/95	0925	CEK	1	1L	V	/	TO-14 + PREFRAC		5.5"	

RELEASED BY	DATE	TIME	COMMENTS:
[signature]	9/14/95	12:11	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[signature]	9/14/95	17:11	[signature]	9/14/95	17:40
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[signature]	9/14/95	12:40		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Condition when received: good

Custody Seal intact? Y N None

Temp. AMBIENT

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509107B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8034
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/14/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/22/95	**AMOUNT$:**	$200.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN 004	Mod. Method 18	5.5 "Hg	$50.00
02A	POLY AEN 005	Mod. Method 18	6.0 "Hg	$50.00
03A	POLY AEX 006	Mod. Method 18	5.5 "Hg	$50.00
04A	POLY AEN 007	Mod. Method 18	5.5 "Hg	$50.00
05A	Method Spike	Mod. Method 18	NA	NC
06A	Lab Blank	Mod. Method 18	NA	NC

CERTIFIED BY: Linda S. Truman

Laboratory Director

DATE: 9/22/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY AIN 004	9509107B-01A	A0914015	9/13/95	Vinyl Chloride	5.0	250	2800
POLY AEN 005	9509107B-02A	A0914016	9/13/95	Vinyl Chloride	2.5	130	1200
POLY AEX 006	9509107B-03A	A0914017	9/13/95	Vinyl Chloride	2.5	130	1900
POLY AEN 007	9509107B-04A	A0914018	9/14/95	Vinyl Chloride	2.5	130	2600
Lab Blank	9509107B-06A	A0914014	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							**% Recovery**
Method Spike	9509107B-05A	A0914013	NA	Vinyl Chloride	1.0	50	101

Analysis Date: 9/14/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509107B

1010

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
POWHEL EVALUATION	AIR TOXICS LTD
CONTRACT NAME: McCLELLAN POWHEL	180 BLUE RAVINE SUITE B
CHARGE NUMBER: 502-125-3010	FOLSOM, CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSER'S INITIALS
1A	POWHEL AIN 004	09/13/95	1200	CGK	1	1L	V	/	TO-14 + PREFRAC			
2A	POWHEL AEN005	09/13/95	1200	CGK	1	1L	V	/	TO-14 SEE NOTE			
3A	POWHEL AEX006	09/13/95	1200	CGK	1	1L	V	/	TO-14 SEE NOTE			
	NOTE ANALYZE SAMPLES 004 5 006											
	USING PREFRACTIONATOR ONLY											
	IF VINYL CHLORIDE IS DETECTED											
	IN SAMPLE					004						

RELEASED BY	DATE	TIME	COMMENTS: Condition when received good - Hand Delivered
[illegible]	9/14/95	:	Custody Seal intact? Y N None N/A Temp. Ambient

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[illegible]	9/14/95	:	Melissa E. Ingols	9/14/95	8:20
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
Cyril A Wright ATL	9/14/95	8:20		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal Intact? Y N None Temp. [illegible]

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

950907F

1011

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
MCAFB POLYMER TS	AIR TOXICS LTD
CONTRACT NAME: DO 8025	180 BLUE RAVINE RD. SUITE B
CHARGE NUMBER: 603-125-80-10	FOLSOM, CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
04A	AEN007	09/14/95	0925	CGL	1	1L	V	/	TO-14 + PREFRAC			

RELEASED BY	DATE	TIME	COMMENTS:
[signature]	9/14/95	12:11	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[signature]	9/14/95	12:11	[signature]	9/14/95	12:40
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[signature]	9/14/95	12:40		/ /	:

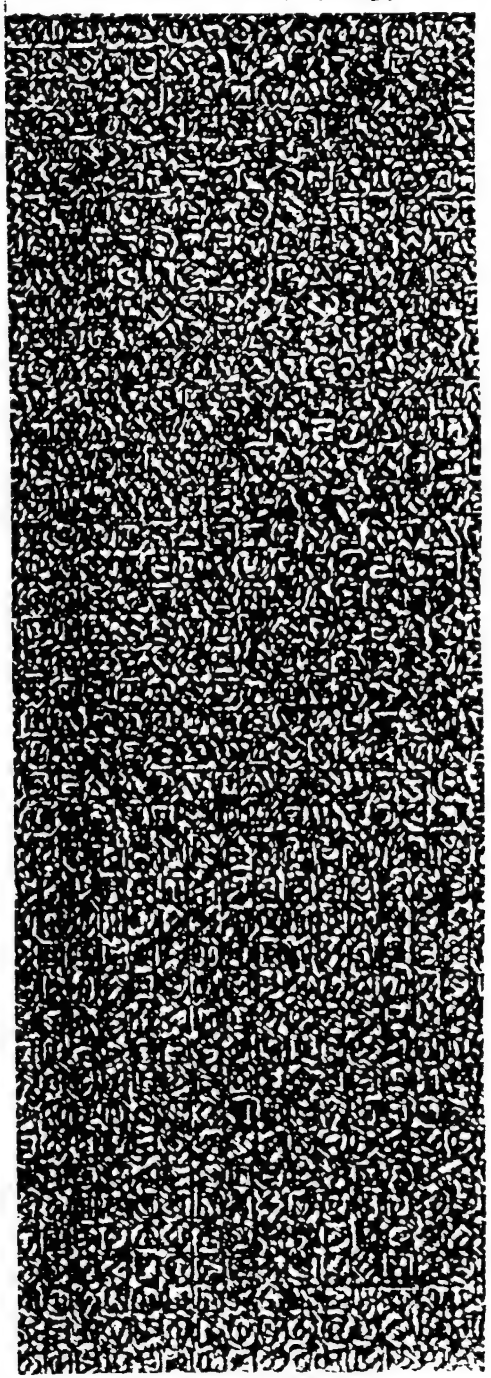
DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Condition when received: good

Custody Seal Intact? Y N None

Temp [illegible]



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509134A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8035
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/15/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED	9/22/95	**AMOUNT$:**	$205.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AEN-008	TO-14	5.5 "Hg	$205.00
02A	Method Spike	TO-14	NA	NC
03A	Lab Blank	TO-14	NA	NC

9/28/95 OK

CERTIFIED BY: Linda D. Truman
Laboratory Director

DATE: 9/22/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN-008

ID#: 9509134A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091605**	**Date of Collection:**	**9/15/95**
Dil. Factor:	**3800**	**Date of Analysis:**	**9/16/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1900	Not Detected
1,1-Dichloroethene	1900	Not Detected
Freon 113	1900	Not Detected
cis-1,2-Dichloroethene	1900	18000
Chloroform	1900	1900
1,1,1-Trichloroethane	1900	Not Detected
Benzene	1900	4000
Trichloroethene	1900	670000
Toluene	1900	3200
Tetrachloroethene	1900	Not Detected
m,p-Xylene	1900	14000
o-Xylene	1900	5500
Acetone	7600	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**88**	**70-130**
Toluene-d8	**103**	**70-130**
4-Bromofluorobenzene	**102**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509134A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091602**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/16/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	121
1,1-Dichloroethene	0.50	94
Freon 113	0.50	90
cis-1,2-Dichloroethene	0.50	98
Chloroform	0.50	98
1,1,1-Trichloroethane	0.50	94
Benzene	0.50	106
Trichloroethene	0.50	92
Toluene	0.50	96
Tetrachloroethene	0.50	90
m,p-Xylene	0.50	99
o-Xylene	0.50	95
Acetone	2.0	106

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**97**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**104**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509134A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091604**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/16/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**104**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509134 A
1012

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
CONTRACT NAME:	
CHARGE NUMBER:	

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
A				1	1 L	V	/				

RELEASED BY	DATE	TIME
	9/15	1:5

COMMENTS: Condition when received good
Custody Seal intact? Y N None Temp.

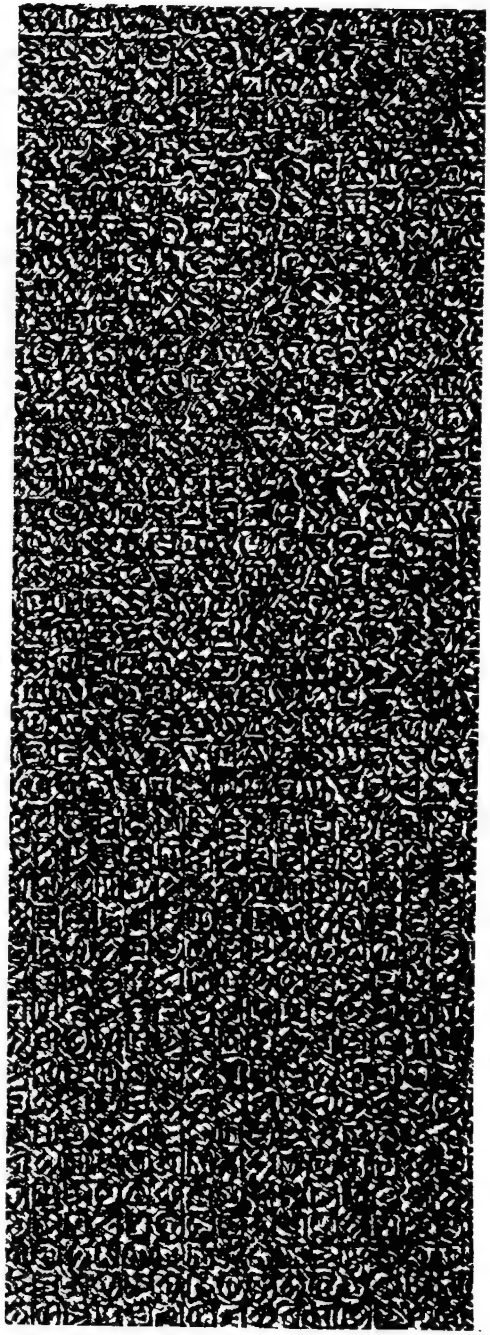
RECEIVED BY	DATE	TIME
	9/15	0:4
	9/15/95	17:08
	/ /	:
	/ /	:
	/ /	:

RELINQUISED BY	DATE	TIME
#113	9/15/95	17:08
	/ /	:
	/ /	:
	/ /	:
	/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509134B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8035
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/15/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/22/95	**AMOUNT$:**	$50.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AEN-008	Mod. Method 18	5.5 "Hg	$50.00
02A	Method Spike	Mod. Method 18	NA	NC
03A	Lab Blank	Mod. Method 18	NA	NC

9/20/95 OK

CERTIFIED BY: Linda D. Fruman DATE: 9/22/95

Laboratory Director

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY AEN-008	9509134B-01A	A0918B05	9/15/95	Vinyl Chloride	2.5	130	3200
Lab Blank	9509134B-03A	A0918B02	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							**% Recovery**
Method Spike	9509134B-02A	A0918B01	NA	Vinyl Chloride	1.0	50	94

Analysis Date: 9/18/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

5091346

1012

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
McAFB POLYMER EVALUATION	AIR TOXICS LTD
CONTRACT NAME: DO. 8025	180 BLUE RAVINE RD, SUITE B
CHARGE NUMBER: 602-12.5-80-10	FOLSOM, CA

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL REQ DATE	DISPOSALER'S INITIALS
1 OF 1 MEN-008	9/15/95	12:10	IWL	1	1 L	V	/	TO-14 + (P)		5.5"Hg	
								ONLY IF			
								VC NOT DETECTED			

RELEASED BY	DATE	TIME
[illegible]	9/15/95	4:55

COMMENTS: Condition when received good
Custody Seal intact? Y N (None) Temp. Ambient

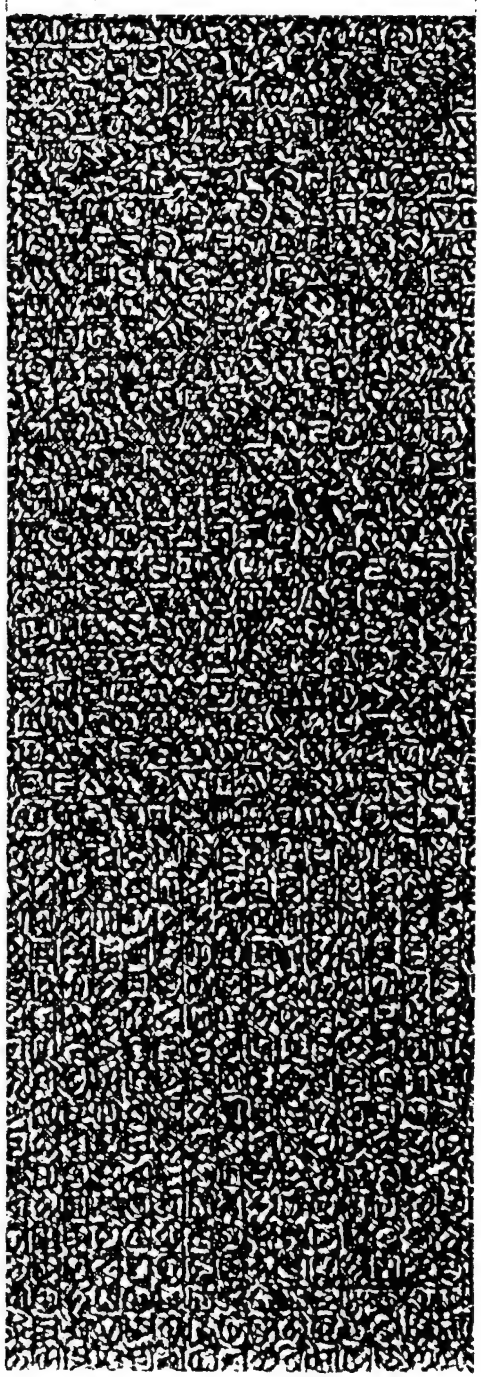
RECEIVED BY	DATE	TIME
[illegible]	9/15/95	4:4[illegible]
Theresa Schmidt	9/15/95	17:08
	/ /	:
	/ /	:
	/ /	:

RELINQUISED BY	DATE	TIME
Ben Atl13	9/15/95	17:08
	/ /	:
	/ /	:
	/ /	:
	/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509168A

Work Order Summary

CLIENT: Ms. Carol Kontonickas
Radian Corporation
10389 Old Placerville Road
Sacramento, CA 95827

BILL TO: Subcontracts Payable
Radian Corporation
P.O. Box 201088
Austin, TX 78720-1088

PHONE: 916-857-7448
FAX: 916-362-2318
DATE RECEIVED: 9/19/95
DATE COMPLETED: 9/29/95

INVOICE # 8119
SUBCONTRACT # S00256066
PROJECT # 602-125-80-10 McClellan Polymer
AMOUNT$: $820.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN-090	TO-14	6.0 "Hg	$205.00
02A	POLY AEN-010	TO-14	7.5 "Hg	$205.00
03A	POLY AIN-011	TO-14	3.0 "Hg	$205.00
04A	POLY AEN-012	TO-14	3.0 "Hg	$205.00
05A	Method Spike	TO-14	NA	NC
06A	Lab Blank	TO-14	NA	NC
06B	Lab Blank	TO-14	NA	NC

10/11/95 yes good.

CERTIFIED BY: Linda S. Truman
Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY AIN-090

ID#: 9509168A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091913**	**Date of Collection:**	**9/18/95**
Dil. Factor:	**3400**	**Date of Analysis:**	**9/19/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1700	2600 J
1,1-Dichloroethene	1700	Not Detected
Freon 113	1700	Not Detected
cis-1,2-Dichloroethene	1700	21000
Chloroform	1700	2300
1,1,1-Trichloroethane	1700	Not Detected
Benzene	1700	3400
Trichloroethene	1700	760000 E J
Toluene	1700	Not Detected
Tetrachloroethene	1700	Not Detected
m,p-Xylene	1700	8700
o-Xylene	1700	7500
Acetone	6800	11000

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**102**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**90**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN-010

ID#: 9509168A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091914**	**Date of Collection:**	**9/18/95**
Dil. Factor:	**5400**	**Date of Analysis:**	**9/19/95**
Analyst's Initials:	**FA**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	2700	Not Detected
1,1-Dichloroethene	2700	Not Detected
Freon 113	2700	Not Detected
cis-1,2-Dichloroethene	2700	19000
Chloroform	2700	Not Detected
1,1,1-Trichloroethane	2700	Not Detected
Benzene	2700	3500
Trichloroethene	2700	650000
Toluene	2700	Not Detected
Tetrachloroethene	2700	Not Detected
m,p-Xylene	2700	14000
o-Xylene	2700	14000
Acetone	11000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**88**	**70-130**
Toluene-d8	**98**	**70-130**
4-Bromofluorobenzene	**98**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AIN-011

ID#: 9509168A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091921**	**Date of Collection:**	**9/19/95**
Dil. Factor:	**4500**	**Date of Analysis:**	**9/20/95**
Analyst's Initials:	**FA**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	2300	3100
1,1-Dichloroethene	2300	Not Detected
Freon 113	2300	Not Detected
cis-1,2-Dichloroethene	2300	20000
Chloroform	2300	2300
1,1,1-Trichloroethane	2300	Not Detected
Benzene	2300	3800
Trichloroethene	2300	660000
Toluene	2300	Not Detected
Tetrachloroethene	2300	Not Detected
m,p-Xylene	2300	9300
o-Xylene	2300	7200
Acetone	9000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY AEN-012

ID#: 9509168A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091922**	**Date of Collection:**	**9/19/95**
Dil. Factor:	**3000**	**Date of Analysis:**	**9/20/95**
Analyst's Initials:	**FA**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1500	1900 J+
1,1-Dichloroethene	1500	Not Detected
Freon 113	1500	Not Detected
cis-1,2-Dichloroethene	1500	22000
Chloroform	1500	2600
1,1,1-Trichloroethane	1500	Not Detected
Benzene	1500	3600
Trichloroethene	1500	730000 E J+
Toluene	1500	Not Detected
Tetrachloroethene	1500	Not Detected
m,p-Xylene	1500	4000
o-Xylene	1500	4200
Acetone	6000	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**93**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509168A-05A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091902**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/19/95**	
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	142 Q
1,1-Dichloroethene	0.50	110
Freon 113	0.50	100
cis-1,2-Dichloroethene	0.50	97
Chloroform	0.50	98
1,1,1-Trichloroethane	0.50	91
Benzene	0.50	109
Trichloroethene	0.50	94
Toluene	0.50	105
Tetrachloroethene	0.50	89
m,p-Xylene	0.50	95
o-Xylene	0.50	99
Acetone	2.0	92

Q = Exceeds Quality Control limits of 70% to 130%.

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**102**	**70-130**
Toluene-d8	**104**	**70-130**
4-Bromofluorobenzene	**98**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509168A-06A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091904**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/19/95**
Analyst's Initials:	**LTS**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	**% Recovery**	**Method Limits**
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509168A-06B

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9091920**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/20/95**
Analyst's Initials:	**FA**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**95**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**89**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509168 A

1013

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
MCCLELLAN LANDFILL	AIR TOXICS LTD
CONTRACT NAME: [illegible] 2025	180 BLUE RAVINE SUITE B
CHARGE NUMBER: 602-125-80-10	FOLSOM, CA. 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL PICKUP DATE	DISPOSALER'S INITIALS
01A	[illegible]	9/19/95	16:10	JWL	1	1L	V	—	TO-14 + (P)		6.0 "Hg	
02A	[illegible]	9/19/95	16:45	JWL	1	1L	V	—	TO-14 + (P)		7.5 "Hg	
									(P) - PREFRACTIONATOR ONLY ANALYZE IF VINYL CHLORIDE IS NOT DETECTED USING TO-14.			

RELEASED BY	DATE	TIME	COMMENTS:
[illegible]	9/19/95	17:20	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[illegible]	9/19/95	13:22	[illegible]	9/19/95	17:20
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[illegible]	9/19/95	14:10		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal intact? Y N None

Temp. AMBIENT

Condition upon receipt: good

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509168 -A
1014

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
MCAFB POLYMER TS	AIR TOXICS LTD
CONTRACT NAME: DO 8025	180 BLUE RAVINE RD SUITE B
CHARGE NUMBER: 602·125-80+10	FOLSOM, CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	SHIPPED DATE	DISPOSAL'S INITIALS
03A	POLY AIN-011	09/19/95	915	CGK	1	1 L	V	/	TO-14 + (P)		3.0"Hg	
04A	POLY AEN-012	09/19/95	920	CGK	1	1 L	V	/	TO-14 + (P)		3.0"Hg	
									(P) = PRE FRACTIONATOR			
									ANALYZE ONLY			
									IF VINYL CHLORIDE			
									IS ND USING			
									TO-14			

RELEASED BY	DATE	TIME	COMMENTS:
[signature]	9/19/95	1:20	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[signature]	9/19/95	13:22	[signature]	9/19/95	17:10
B. Blackman	9/19/95	19:10		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[signature]	9/19/95	14:10		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal intact? Y N None

Temp. AMBIENT

Condition when received good

[redacted] TWO COPIES [redacted]

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509168B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8119
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/19/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	$50.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY AIN-090*	Mod. Method 18	6.0 "Hg	NC
02A	POLY AEN-010	Mod. Method 18	7.5 "Hg	$50.00
03A	POLY AIN-011*	Mod. Method 18	3.0 "Hg	NC
04A	POLY AEN-012*	Mod. Method 18	3.0 "Hg	NC
05A	Method Spike	Mod. Method 18	NA	NC
06A	Lab Blank	Mod. Method 18	NA	NC

10/11/95 NoQual

LAB NARRATIVE:

***Sample on hold per client's request.**

CERTIFIED BY: Linda L. Fuerman

Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY AIN-090*	9509168B-01A	NA	9/18/95	Vinyl Chloride	1.0	50	Not Analyzed
POLY AEN-010	9509168B-02A	A092010	9/18/95	Vinyl Chloride	2.7	140	3000
POLY AIN-011*	9509168B-03A	NA	9/19/95	Vinyl Chloride	1.0	50	Not Analyzed
POLY AEN-012*	9509168B-04A	NA	9/19/95	Vinyl Chloride	1.0	50	Not Analyzed
Lab Blank	9509168B-06A	A092006	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							**% Recovery**
Method Spike	9509168B-05A	A092005	NA	Vinyl Chloride	1.0	50	100

Analysis Date: 9/20/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS & SPM

Comments: NA = Not Applicable
*Sample on hold per client's request.

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509168V - 1

1013

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
Accidental Release Tests	Air Toxics Ltd
CONTRACT NAME: 08025	180 Blue Ravine Suites B
CHARGE NUMBER: 602-125-80-10	Folsom, CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
01A	[illegible]	9/15/95	1610	IWL	1	1L	V	-	TO-14 + (P)			
02A	[illegible]	9/18/95	1615	IWL	1	1L	V	-	TO-14 + (P)			
									(P) = PREPARATION-			
									ATOR			
									ONLY ANALYZE			
									IF VINYL CHLORIDE			
									IS NOT DETECTED			
									USING TO-14			

RELEASED BY	DATE	TIME	COMMENTS:
[illegible]	9/19/95	1:2	-

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[illegible]	9/19/95	13:22	[illegible]	9/19/95	1910
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[illegible]	9/19/95	14:10		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal Intact? Y N (None) Temp. AMBIENT

good

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509168 - 1014

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
NCAPS POLYMER TS	AIR TOXICS LTD
CONTRACT NAME: DO 8025	180 BLUE RAVINE RD SUITE B
CHARGE NUMBER: 002-125-8010	FOLSOM, CA 95630

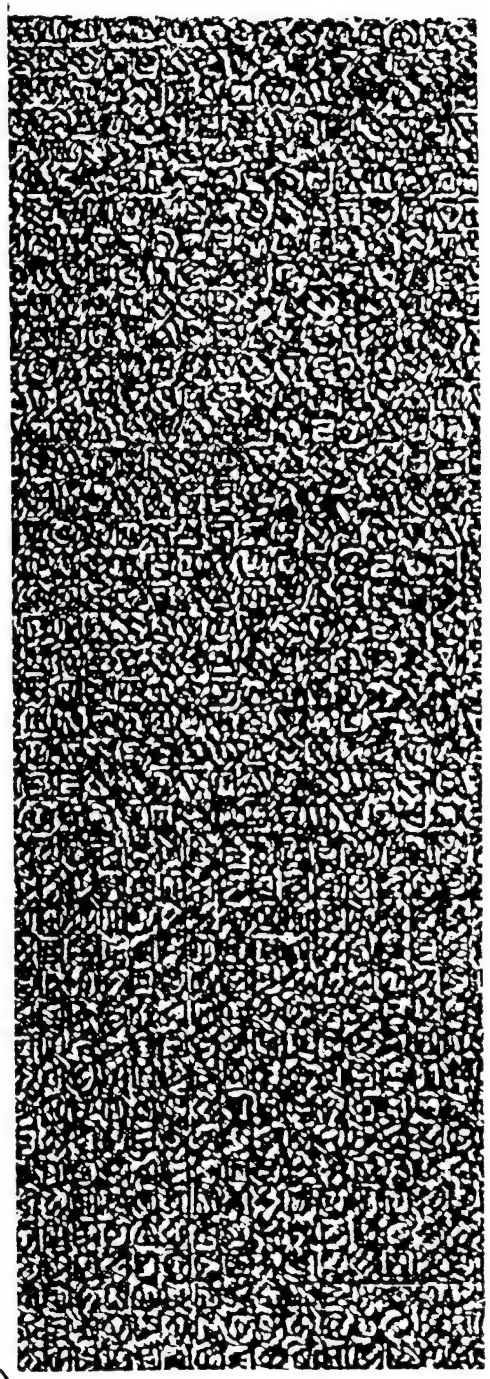
	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL'S INITIALS
03A	DUP AIN-011	9/19/95	915	GK	1	1 L	V	✓	TO-14 + (1)			
04A	DUP AFN-012	9/19/95	920	GK	1	1 L	V	✓	TO-14 + (1)			
									(1) = REFRACTIONATE			
									ANALYZE ONLY			
									IF VINYL CHLORIDE			
									IS ND USING			
									TO-14			

RELEASED BY	DATE	TIME	COMMENTS:
	9/19/95	1720	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
	9/19/95	13:22		9/19/95	14:10
06	9/19/95	14:10		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
	9/19/95	14:10		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509180A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8120
FAX:	916-362-2318	**P.O. #**	S00256066
DATE RECEIVED:	9/20/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	$410.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	Poly-AIN-013	TO-14	2.5 "Hg	$205.00
02A	Poly-AEN-014	TO-14	2.5 "Hg	$205.00
03A	Method Spike	TO-14	NA	NC
04A	Lab Blank	TO-14	NA	NC

10/2/95
yes qual

CERTIFIED BY: Linda S. Truman
Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: Poly-AIN-013
ID#: 9509180A-01A
EPA METHOD TO-14 GC/MS Full Scan

File Name:	**1092107**	**Date of Collection:**	**9/20/95**
Dil. Factor:	**4400**	**Date of Analysis:**	**9/21/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	2200	Not Detected
1,1-Dichloroethene	2200	Not Detected
Freon 113	2200	Not Detected
cis-1,2-Dichloroethene	2200	16000
Chloroform	2200	Not Detected
1,1,1-Trichloroethane	2200	Not Detected
Benzene	2200	2500
Trichloroethene	2200	520000
Toluene	2200	Not Detected
Tetrachloroethene	2200	Not Detected
m,p-Xylene	2200	6200
o-Xylene	2200	4000 J
Acetone	8800	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**106**	**70-130**
Toluene-d8	**84**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-AEN-014

ID#: 9509180A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**1092114**	**Date of Collection:**	**9/20/95**
Dil. Factor:	**4400**	**Date of Analysis:**	**9/22/95**
Analyst's Initials:	**SPM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	2200	Not Detected
1,1-Dichloroethene	2200	Not Detected
Freon 113	2200	Not Detected
cis-1,2-Dichloroethene	2200	17000
Chloroform	2200	Not Detected
1,1,1-Trichloroethane	2200	Not Detected
Benzene	2200	2700
Trichloroethene	2200	590000
Toluene	2200	Not Detected
Tetrachloroethene	2200	Not Detected
m,p-Xylene	2200	4100
o-Xylene	2200	2300 J
Acetone	8800	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**115**	**70-130**
Toluene-d8	**86**	**70-130**
4-Bromofluorobenzene	**103**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509180A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**1092104**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/21/95**	
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	71
1,1-Dichloroethene	0.50	77
Freon 113	0.50	91
cis-1,2-Dichloroethene	0.50	77
Chloroform	0.50	87
1,1,1-Trichloroethane	0.50	76
Benzene	0.50	73
Trichloroethene	0.50	85
Toluene	0.50	73
Tetrachloroethene	0.50	95
m,p-Xylene	0.50	78
o-Xylene	0.50	61 Q
Acetone	2.0	134

Q = Exceeds Quality Control limits.

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**109**	**70-130**
Toluene-d8	**85**	**70-130**
4-Bromofluorobenzene	**97**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509180A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**1092106**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/21/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**114**	**70-130**
Toluene-d8	**85**	**70-130**
4-Bromofluorobenzene	**92**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509180

5946

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
CONTRACT NAME:	
CHARGE NUMBER:	

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
										2.5	
										2.5	
								BEFORE ANALYSING			
								PLEASE CALL			
								L. KONOPKA			
								557-7445			
								COC			

RELEASED BY	DATE	TIME	COMMENTS:

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal intact? Y N None Temp. Ambient — Dirty Ex. Condition when received good

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509180B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8120
FAX:	916-362-2318	**P.O. #**	S00256066
DATE RECEIVED:	9/20/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	No Charge

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	Poly-AIN-013	Mod. Method 18	2.5 "Hg	NC
01B	Poly-AIN-013 Duplicate	Mod. Method 18	2.5 "Hg	NC
02A	Poly-AEN-014	Mod. Method 18	2.5 "Hg	NC
03A	Method Spike	Mod. Method 18	NA	NC
04A	Lab Blank	Mod. Method 18	NA	NC
04B	Lab Blank	Mod. Method 18	NA	NC

10/12/95 no qual.

CERTIFIED BY: Linda L. Fuemea

Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)	RPD
Poly-AIN-013	9509180B-01A	A092104	9/20/95	Vinyl Chloride	2.2	110	2200	0
Poly-AIN-013 Duplicate	9509180B-01B	A092105	9/20/95	Vinyl Chloride	2.2	110	2200	0
Poly-AEN-014	9509180B-02A	A092204	9/20/95	Vinyl Chloride	4.4	220	2600	NA
Lab Blank	9509180B-04A	A092103	NA	Vinyl Chloride	1.0	50	Not Detected	NA
Lab Blank	9509180B-04B	A092203	NA	Vinyl Chloride	1.0	50	Not Detected	NA
Spiked Samples							% Recovery	
Method Spike	9509180B-03A	A092102	NA	Vinyl Chloride	1.0	50	92	NA

Analysis Date: 9/21/95 & 9/22/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: SPM

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

95091803

5846

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
Polymeric Polymer	AIR TOXICS LTD
CONTRACT NAME: CVC Imc AFB 004	110 Blue Ravine Rd B
CHARGE NUMBER:	Folsom CA 95630

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL'S INITIALS
Poly-AIN-013	9/20/95	0830	CAF	1	1L	CN		TO-14, Preferred V.C.		2.5 mg	
Poly-AIN-014	9/20/95	0955	CAF	1	1L	CN		TO-14, Preferred V.C.*		2.5 mg	
								BEFORE ANALYZING			
								PLEASE CALL			
								C. KONTONICKAS			
								857-7448			
								OK			

RELEASED BY	DATE	TIME
C. Kontonickas	9/20/95	2:00
RECEIVED BY	DATE	TIME
C. Schuppman	9/20/95	14:00
	/ /	:
	/ /	:
	/ /	:
Gail Rhodes ATL	9/20/95	14:25
DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

COMMENTS: * Only analyze preferred V.C. IN Poly-AIN-014 if detected in Poly-AIN-013

RELINQUISED BY	DATE	TIME
B. Chapman	9/20/95	14:25
	/ /	:
	/ /	:
	/ /	:
	/ /	:
CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509209A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8122
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/22/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	$410.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY-BIN-016	TO-14	2.0 "Hg	$205.00
02A	POLY-BEN-017	TO-14	2.0 "Hg	$205.00
03A	Method Spike	TO-14	NA	NC
04A	Lab Blank	TO-14	NA	NC

10/12/95
No qual

CERTIFIED BY: Linda K Truesdale
Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY-BIN-016

ID#: 9509209A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092521**	**Date of Collection:**	**9/22/95**
Dil. Factor:	**1400**	**Date of Analysis:**	**9/25/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	700	Not Detected
1,1-Dichloroethene	700	Not Detected
Freon 113	700	Not Detected
cis-1,2-Dichloroethene	700	12000
Chloroform	700	1000
1,1,1-Trichloroethane	700	Not Detected
Benzene	700	2000
Trichloroethene	700	390000 E
Toluene	700	Not Detected
Tetrachloroethene	700	Not Detected
m,p-Xylene	700	3900
o-Xylene	700	3300
Acetone	2800	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**99**	**70-130**
Toluene-d8	**97**	**70-130**
4-Bromofluorobenzene	**98**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY-BEN-017

ID#: 9509209A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092523**	**Date of Collection:**	**9/22/95**
Dil. Factor:	**8.6**	**Date of Analysis:**	**9/25/95**
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	4.3	640
1,1-Dichloroethene	4.3	19
Freon 113	4.3	51
cis-1,2-Dichloroethene	4.3	13
Chloroform	4.3	Not Detected
1,1,1-Trichloroethane	4.3	15
Benzene	4.3	Not Detected
Trichloroethene	4.3	560
Toluene	4.3	Not Detected
Tetrachloroethene	4.3	Not Detected
m,p-Xylene	4.3	4.4
o-Xylene	4.3	Not Detected
Acetone	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	**% Recovery**	**Method Limits**
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509209A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092518**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/25/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	119
1,1-Dichloroethene	0.50	106
Freon 113	0.50	104
cis-1,2-Dichloroethene	0.50	101
Chloroform	0.50	100
1,1,1-Trichloroethane	0.50	100
Benzene	0.50	109
Trichloroethene	0.50	99
Toluene	0.50	100
Tetrachloroethene	0.50	94
m,p-Xylene	0.50	108
o-Xylene	0.50	109
Acetone	2.0	108

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**99**	**70-130**
Toluene-d8	**104**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509209A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092520**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/25/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**95**	**70-130**

9509209

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

TASK OR SUB TASK (one per form): [illegible]	LABORATORY NAME & ADDRESS: AIR [illegible]
CONTRACT NAME: 025	[illegible]
CHARGE NUMBER: 602-125-30-10	[illegible] CA [illegible]

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
[illegible]	[illegible]	[illegible]	[illegible]	1	1L	V	/	[illegible]		[illegible]	
[illegible]		[illegible]	[illegible]	1	1L	V	/	[illegible]		[illegible]	
								[illegible]			
								[illegible]			
								[illegible]			
								VINYL CHLORIDE			
								[illegible]			
								TO-14			

RELEASED BY	DATE	TIME			
[illegible]	9/ /	[illegible]	COMMENTS: Custody Seal intact? Y N None	Temp. [illegible]	
			Condition when received: good		
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
[illegible] PX	9/22/95	[illegible]	[illegible] PX	9/22/95	13:30
	/ /	:		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:
[illegible] ATL	[illegible]	13:30		/ /	:
DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal intact? Y N None Temp. [illegible]

Condition when [illegible] good

[redacted]

@ **AIR TOXICS LTD.**

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509209B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8122
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/22/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	$50.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY-BIN-016	Mod. Method 18	2.0 "Hg	$50.00
02A	Method Spike	Mod. Method 18	NA	NC
03A	Lab Blank	Mod. Method 18	NA	NC

10/12/95 [illegible] No gue[illegible]

CERTIFIED BY: [signature]

Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 · (800) 985-5955 · FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY-BIN-016	9509209B-01A	A092604	9/22/95	Vinyl Chloride	2.2	110	1600
Lab Blank	9509209B-03A	A092603	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							% Recovery
Method Spike	9509209B-02A	A092601	NA	Vinyl Chloride	1.0	50	103

Analysis Date: 9/26/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509209 B-

1016

TASK OR SUB TASK (one per form): MCAFB POLYMER TS	LABORATORY NAME & ADDRESS: AIR TOXICS LTD
CONTRACT NAME: D8025	180 BLUE RAVINE SUITE B
CHARGE NUMBER: 602-125-80-10	FOLSOM, CA 95630

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
1A MW-BIM-GAS	01/22/95	1000	SAF	1	1L	V	—	TO-14 + (F)		2.0 atm	
2A MW-BEN-GAS	01/22/95	1005	SAF	1	1L	V	—	TO-14 + (F)		2.0 atm	
								(F) FRACTIONATES			
								ONLY ANALYZE			
								W/ (F) IF			
								VINYL CHLORIDE			
								IS NOT USING			
								TO-14			

RELEASED BY	DATE	TIME
[signature]	1/24/95	1:08

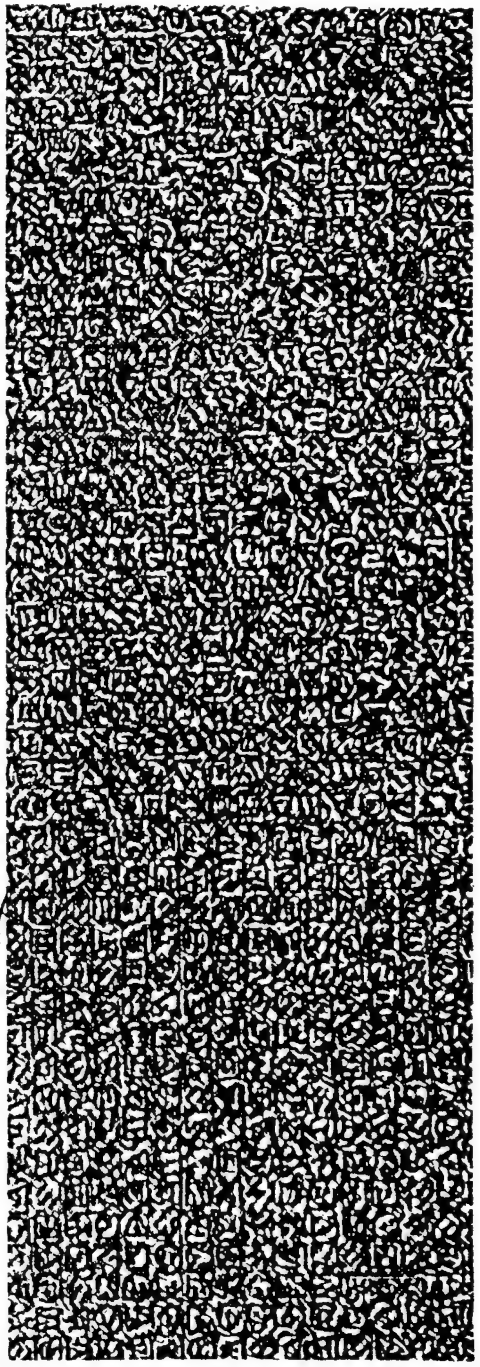
COMMENTS: Custody Seal intact? Y N (None) Temp. Ambient
Condition when received good — Priority ☒

RECEIVED BY	DATE	TIME
[signature]	1/24/95	1:08
	/ /	:
	/ /	:
	/ /	:
[signature] ATL	1/24/95	13:30

RELINQUISED BY	DATE	TIME
[signature]	1/24/95	13:30
	/ /	:
	/ /	:
	/ /	:
	/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509234A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8124
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/25/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	9/29/95	**AMOUNT$:**	$410.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY-BIN-018	TO-14	1.5 "Hg	$205.00
02A	POLY-BEN-019	TO-14	1.5 "Hg	$205.00
03A	Method Spike	TO-14	NA	NC
04A	Lab Blank	TO-14	NA	NC

10/2/95

yes gmd.

CERTIFIED BY: Linda L Truman

Laboratory Director

DATE: 9/29/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY-BIN-018

ID#: 9509234A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092622**	**Date of Collection:**	**9/25/95**
Dil. Factor:	**2100**	**Date of Analysis:**	**9/26/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1100	1200
1,1-Dichloroethene	1100	Not Detected
Freon 113	1100	Not Detected
cis-1,2-Dichloroethene	1100	11000
Chloroform	1100	Not Detected
1,1,1-Trichloroethane	1100	Not Detected
Benzene	1100	1500
Trichloroethene	1100	380000 E
Toluene	1100	Not Detected
Tetrachloroethene	1100	Not Detected
m,p-Xylene	1100	4000
o-Xylene	1100	3200
Acetone	4200	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**101**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY-BEN-019

ID#: 9509234A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092623**	**Date of Collection:**	**9/25/95**
Dil. Factor:	**1400**	**Date of Analysis:**	**9/26/95**
Analyst's Initials:	**LTS**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	700	1400
1,1-Dichloroethene	700	Not Detected
Freon 113	700	Not Detected
cis-1,2-Dichloroethene	700	10000
Chloroform	700	750
1,1,1-Trichloroethane	700	Not Detected
Benzene	700	Not Detected
Trichloroethene	700	150000
Toluene	700	Not Detected
Tetrachloroethene	700	Not Detected
m,p-Xylene	700	Not Detected
o-Xylene	700	Not Detected
Acetone	2800	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**100**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike
ID#: 9509234A-03A
EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092619**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/26/95**	
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	129
1,1-Dichloroethene	0.50	104
Freon 113	0.50	102
cis-1,2-Dichloroethene	0.50	96
Chloroform	0.50	94
1,1,1-Trichloroethane	0.50	91
Benzene	0.50	106
Trichloroethene	0.50	91
Toluene	0.50	93
Tetrachloroethene	0.50	88
m,p-Xylene	0.50	106
o-Xylene	0.50	98
Acetone	2.0	100

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509234A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092621**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/26/95**
Analyst's Initials:	**EV**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**101**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509234

5950

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
CONTRACT NAME:	
CHARGE NUMBER:	

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
01A								+ P		1.5	
02A								P		1.5	
								w/CP			

RELEASED BY	DATE	TIME	COMMENTS:
	/ /	:	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
	/ /	:		/ /	:
Ben A #113	9/25/95	1300	Ben A #113	9/25/95	1327
	/ /	:		/ /	:
	/ /	:		/ /	:
	9/25/95	1327		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Condition when received: good

Custody Seal intact? Y N None Temp. _____

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509272A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8188
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/27/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	10/6/95	**AMOUNT$:**	$410.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY-BIN-020	TO-14	2.0 "Hg	$205.00
02A	POLY-BEN-021	TO-14	2.5 "Hg	$205.00
03A	Method Spike	TO-14	NA	NC
04A	Lab Blank	TO-14	NA	NC

10/12/95 yes/qual

CERTIFIED BY: Linda D. Fournier
Laboratory Director

DATE: 10/6/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: POLY-BIN-020

ID#: 9509272A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092724**	**Date of Collection:**	**9/27/95**
Dil. Factor:	**1400**	**Date of Analysis:**	**9/28/95**
Analyst's Initials:	**LTS**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	700	980
1,1-Dichloroethene	700	Not Detected
Freon 113	700	Not Detected
cis-1,2-Dichloroethene	700	7000
Chloroform	700	Not Detected
1,1,1-Trichloroethane	700	Not Detected
Benzene	700	980
Trichloroethene	700	220000
Toluene	700	750
Tetrachloroethene	700	Not Detected
m,p-Xylene	700	2000
o-Xylene	700	1600
Acetone	2800	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**97**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**97**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: POLY-BEN-021

ID#: 9509272A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092725**	**Date of Collection:**	**9/27/95**
Dil. Factor:	**2800**	**Date of Analysis:**	**9/28/95**
Analyst's Initials:	**LTS**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	Not Detected
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	15000
Chloroform	1400	1500
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	1900
Trichloroethene	1400	500000 E
Toluene	1400	Not Detected
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	Not Detected
o-Xylene	1400	Not Detected
Acetone	5600	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

AIR TOXICS LTD.

SAMPLE NAME: Method Spike
ID#: 9509272A-03A
EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092718**	**Date of Collection: NA**	
Dil. Factor:	**1.0**	**Date of Analysis: 9/27/95**	
Analyst's Initials:	**BJM**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	135 Q
1,1-Dichloroethene	0.50	102
Freon 113	0.50	103
cis-1,2-Dichloroethene	0.50	96
Chloroform	0.50	92
1,1,1-Trichloroethane	0.50	91
Benzene	0.50	105
Trichloroethene	0.50	89
Toluene	0.50	92
Tetrachloroethene	0.50	82
m,p-Xylene	0.50	92
o-Xylene	0.50	88
Acetone	2.0	102

Q = Exceeds Quality Control limits of 70% to 130%.

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**97**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**102**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509272A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**9092721**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**9/27/95**
Analyst's Initials:			

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**95**	**70-130**
Toluene-d8	**102**	**70-130**
4-Bromofluorobenzene	**99**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509272

5951

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
CONTRACT NAME:	
CHARGE NUMBER:	

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
01A										2.04	
02A										2.5	

RELEASED BY	DATE	TIME	COMMENTS:

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
				9/27/95	13:40
	/ /	:		/ /	:
	/ /	:		/ /	:
	9/27/95	3:40		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMRLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Condition when received: good — Custody Seal intact? Y N None — Temp. _____

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509272B

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8188
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/27/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	10/6/95	**AMOUNT$:**	$50.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	POLY-BIN-020*	Mod. Method 18	2.0 "Hg	NC
02A	POLY-BEN-021	Mod. Method 18	2.5 "Hg	$50.00
03A	Method Spike	Mod. Method 18	NA	NC
04A	Lab Blank	Mod. Method 18	NA	NC

10/2/95 No qual

LAB NARRATIVE:
***Sample on hold per client's request.**

CERTIFIED BY: Donald J. Turner
Laboratory Director

DATE: 10/4/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

Vinyl Chloride by Modified EPA Method 18
Pre-Fractionator GC/PID

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Dilution Factor	Det. Limit (ppbv)	Amount (ppbv)
POLY-BIN-020*	9509272B-01A	NA	9/27/95	Vinyl Chloride	1.0	50	Not Analyzed
POLY-BEN-021	9509272B-02A	A092818	9/27/95	Vinyl Chloride	2.2	110	1200
Lab Blank	9509272B-04A	A092812	NA	Vinyl Chloride	1.0	50	Not Detected
Spiked Sample							**% Recovery**
Method Spike	9509272B-03A	A092810	NA	Vinyl Chloride	1.0	50	72

Analysis Date: 9/28/95
Container Type: 1 Liter Summa Canister
Analyst's Initials: JS

Comments: NA = Not Applicable
*Sample on hold per client's request.

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

9509272 B

5851

TASK OR SUB TASK (one per form): McCLELLAN AFB Polymer TS

CONTRACT NAME: D2025

CHARGE NUMBER: 402-125-80-10

LABORATORY NAME & ADDRESS: AIR TOXICS LTD
180 Blue Ravine, Suite B
Folsom, CA 95630

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSAL'S INITIALS
01A	POLY-BIN-010	9/12/95	1000	MI	1	1 Liter	CN	-	TO-14 (P)			
02A	POLY-BIN-021	9/12/95	1005	MI	1	1 Liter	CN	-	TO-14 (P)			
									(P) Preconcentrator			
									can analyze			
									w/(P) if			
									vinyl chloride			
									is ND using			
									TO-14			

RELEASED BY	DATE	TIME
[signature]	9/13/95	12:00

COMMENTS:

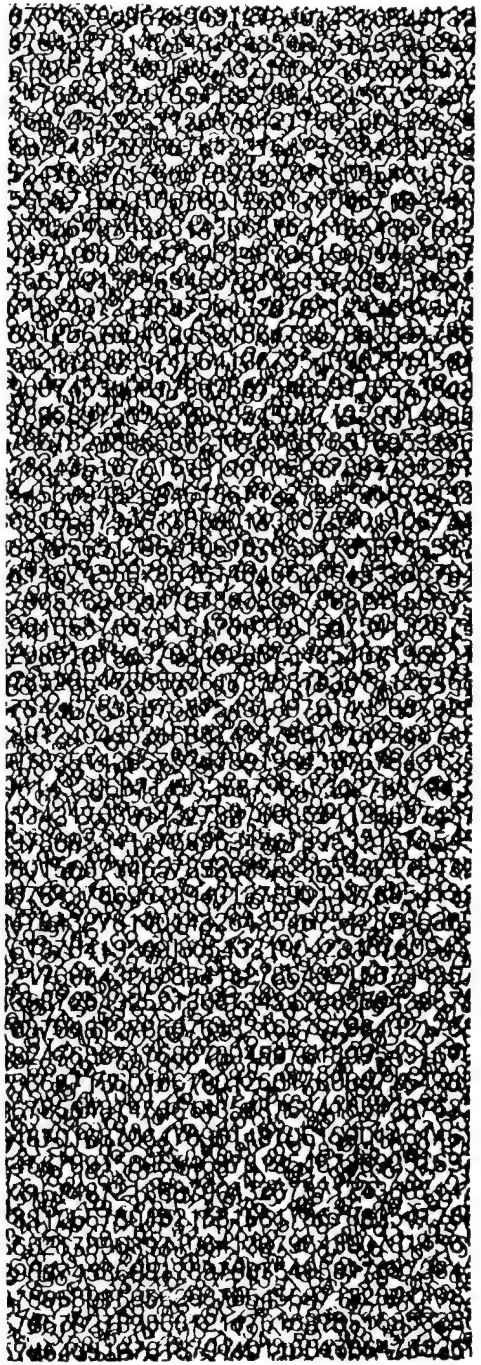
RECEIVED BY	DATE	TIME
[signature]	9/13/95	1400
[signature]	9/14/95	15:20
	/ /	:
	/ /	:
[signature]	9/27/95	13:40

RELINQUISED BY	DATE	TIME
[signature]	9/14/95	1520
E. Chapman	9/27/95	13:40
	/ /	:
	/ /	:
	/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME
	/ /	:

CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT



@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9509314A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8190
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	9/29/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	10/6/95	**AMOUNT$:**	$615.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	Poly-BIN-022*	TO-14	1.5 "Hg	NC
02A	Poly-BEN-023*	TO-14	1.0 "Hg	NC
03A	Poly-CIN-024	TO-14	2.0 "Hg	$205.00
03B	Poly-CIN-024 Duplicate	TO-14	2.0 "Hg	$205.00
04A	Poly-CEN-025	TO-14	2.0 "Hg	$205.00
05A	Method Spike	TO-14	NA	NC
06A	Lab Blank	TO-14	NA	NC

10/12/95 yes gwd

LAB NARRATIVE:
***Sample on hold per client's request.**

CERTIFIED BY: Linda J. Fruman
Laboratory Director

DATE: 10/6/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: Poly-BIN-022*

ID#: 9509314A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**NA**	**Date of Collection: 9/29/95**
Dil. Factor:	**1.0**	**Date of Analysis: NA**
Analyst's Initials:	**NA**	

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Analyzed
1,1-Dichloroethene	0.50	Not Analyzed
Freon 113	0.50	Not Analyzed
cis-1,2-Dichloroethene	0.50	Not Analyzed
Chloroform	0.50	Not Analyzed
1,1,1-Trichloroethane	0.50	Not Analyzed
Benzene	0.50	Not Analyzed
Trichloroethene	0.50	Not Analyzed
Toluene	0.50	Not Analyzed
Tetrachloroethene	0.50	Not Analyzed
m,p-Xylene	0.50	Not Analyzed
o-Xylene	0.50	Not Analyzed
Acetone	2.0	Not Analyzed

***Sample on hold per client's request.**

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**NA**	**70-130**
Toluene-d8	**NA**	**70-130**
4-Bromofluorobenzene	**NA**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-BEN-023*

ID#: 9509314A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**NA**	**Date of Collection:**	**9/29/95**
Dil. Factor:	**1.0**	**Date of Analysis:**	**NA**
Analyst's Initials:	**NA**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Analyzed
1,1-Dichloroethene	0.50	Not Analyzed
Freon 113	0.50	Not Analyzed
cis-1,2-Dichloroethene	0.50	Not Analyzed
Chloroform	0.50	Not Analyzed
1,1,1-Trichloroethane	0.50	Not Analyzed
Benzene	0.50	Not Analyzed
Trichloroethene	0.50	Not Analyzed
Toluene	0.50	Not Analyzed
Tetrachloroethene	0.50	Not Analyzed
m,p-Xylene	0.50	Not Analyzed
o-Xylene	0.50	Not Analyzed
Acetone	2.0	Not Analyzed

***Sample on hold per client's request.**

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**NA**	**70-130**
Toluene-d8	**NA**	**70-130**
4-Bromofluorobenzene	**NA**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-CIN-024

ID#: 9509314A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100211**	**Date of Collection:**	**9/29/95**
Dil. Factor:	**2200**	**Date of Analysis:**	**10/2/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1100	2200
1,1-Dichloroethene	1100	Not Detected
Freon 113	1100	Not Detected
cis-1,2-Dichloroethene	1100	23000
Chloroform	1100	2200
1,1,1-Trichloroethane	1100	Not Detected
Benzene	1100	2800
Trichloroethene	1100	640000 E
Toluene	1100	1600
Tetrachloroethene	1100	Not Detected
m,p-Xylene	1100	7200
o-Xylene	1100	6300
Acetone	4400	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**104**	**70-130**
Toluene-d8	**100**	**70-130**
4-Bromofluorobenzene	**90**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-CIN-024 Duplicate

ID#: 9509314A-03B

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100213**	**Date of Collection:**	**9/29/95**
Dil. Factor:	**2200**	**Date of Analysis:**	**10/2/95**
Analyst's Initials:	**LTS**		

Compound	Det. Limit (ppbv	Amount (ppbv)	RPD
Vinyl Chloride	1100	2000	9.5
1,1-Dichloroethene	1100	Not Detected	NA
Freon 113	1100	Not Detected	NA
cis-1,2-Dichloroethene	1100	22000	4.4
Chloroform	1100	2100	4.7
1,1,1-Trichloroethane	1100	Not Detected	NA
Benzene	1100	2400	15
Trichloroethene	1100	600000 E	6.5
Toluene	1100	1500	6.5
Tetrachloroethene	1100	Not Detected	NA
m,p-Xylene	1100	7300	1.4
o-Xylene	1100	6300	0
Acetone	4400	Not Detected	NA

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	107	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	92	70-130

AIR TOXICS LTD.

SAMPLE NAME: Poly-CEN-025

ID#: 9509314A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100212**	**Date of Collection:**	**9/29/95**
Dil. Factor:	**2800**	**Date of Analysis:**	**10/2/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	2500
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	26000
Chloroform	1400	2500
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	3500
Trichloroethene	1400	690000 E
Toluene	1400	Not Detected
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	Not Detected
o-Xylene	1400	Not Detected
Acetone	5600	Not Detected

E = Exceeds instrument calibration range, but within linear range.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**104**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**89**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9509314A-05A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100202**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**10/2/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	97
1,1-Dichloroethene	0.50	103
Freon 113	0.50	98
cis-1,2-Dichloroethene	0.50	95
Chloroform	0.50	100
1,1,1-Trichloroethane	0.50	102
Benzene	0.50	92
Trichloroethene	0.50	87
Toluene	0.50	84
Tetrachloroethene	0.50	81
m,p-Xylene	0.50	90
o-Xylene	0.50	85
Acetone	2.0	103

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**103**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**109**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9509314A-06A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100206**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**10/2/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**105**	**70-130**
Toluene-d8	**96**	**70-130**
4-Bromofluorobenzene	**73**	**70-130**

95093144
4999

[redacted]

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10395 OLD PLACERVILLE ROAD, SACRAMENTO, CA 95827
(916) 362-5332

TASK OR SUB TASK (one per form): Polymer Treatability Study

CONTRACT NAME: DECCS

CHARGE NUMBER: 602-175-50-10

LABORATORY NAME & ADDRESS: AIR TOXICS LTD
180 BLUE RAVINE RD SUITE B
FOLSOM CA 95630

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DATE	DISPOSALER'S INITIALS
[illegible]	9/12/95	[illegible]	[illegible]	1	[illegible]	[illegible]	-	14 + (P) *		15 [illegible]	
[illegible]-23	9/12/95	[illegible]	[illegible]	1	[illegible]	CA	-	[illegible] + (P) *		[illegible]	
[illegible]	[illegible]	1115	[illegible]	1	[illegible]	CA	-	[illegible] + (P)		[illegible]	
[illegible]	[illegible]	1115	[illegible]	[illegible]	↓	CA	-	[illegible] + (P)		[illegible]	
								(P) [illegible]			
								[illegible] analyze			
								(P) [illegible]			
								[illegible] chloride			
								is ND using TO-14			

RELEASED BY	DATE	TIME
[illegible]	[illegible]	[illegible]

COMMENTS: * DO NOT ANALYZE UNLESS [illegible] ACTED [illegible]

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
[illegible]	[illegible]	:		/ /	:
	/ /	:	[signature]	9/15/95	16:40
	/ /	:		/ /	:
	/ /	:		/ /	:
[illegible] ATL	[illegible]	[illegible]		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal intact? Y N None Temp. [illegible] Condition good [illegible]

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9510006A

Work Order Summary

CLIENT:	Ms. Carol Kontonickas Radian Corporation 10389 Old Placerville Road Sacramento, CA 95827	**BILL TO:**	Subcontracts Payable Radian Corporation P.O. Box 201088 Austin, TX 78720-1088
PHONE:	916-857-7448	**INVOICE #**	8191
FAX:	916-362-2318	**SUBCONTRACT #**	S00256066
DATE RECEIVED:	10/2/95	**PROJECT #**	602-125-80-10 McClellan Polymer
DATE COMPLETED:	10/6/95	**AMOUNT$:**	$820.00

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	PRICE
01A	Poly-CIN-026	TO-14	2.0 "Hg	$205.00
02A	Poly-CEN-027	TO-14	2.5 "Hg	$205.00
03A	Poly-CIN-028	TO-14	2.0 "Hg	$205.00
04A	Poly-CEN-029	TO-14	1.5 "Hg	$205.00
05A	Method Spike	TO-14	NA	NC
06A	Lab Blank	TO-14	NA	NC

10/12/95 S Hoguet

CERTIFIED BY: Linda L. Fruman
Laboratory Director

DATE: 10/6/95

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME: Poly-CIN-026

ID#: 9510006A-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100310**	**Date of Collection:**	**9/30/95**
Dil. Factor:	**2700**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	2400
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	25000
Chloroform	1400	2500
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	3300
Trichloroethene	1400	720000
Toluene	1400	2200
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	9500
o-Xylene	1400	8200
Acetone	5400	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**94**	**70-130**
Toluene-d8	**101**	**70-130**
4-Bromofluorobenzene	**82**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-CEN-027

ID#: 9510006A-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100311**	**Date of Collection:**	**9/30/95**
Dil. Factor:	**2800**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	1600
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	24000
Chloroform	1400	2500
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	2600
Trichloroethene	1400	690000
Toluene	1400	2100
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	19000
o-Xylene	1400	22000
Acetone	5600	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**105**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**75**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-CIN-028

ID#: 9510006A-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100313**	**Date of Collection:**	**10/2/95**
Dil. Factor:	**2700**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	2000
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	25000
Chloroform	1400	2400
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	2700
Trichloroethene	1400	660000
Toluene	1400	1600
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	9600
o-Xylene	1400	7200
Acetone	5400	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**98**	**70-130**
Toluene-d8	**104**	**70-130**
4-Bromofluorobenzene	**84**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Poly-CEN-029

ID#: 9510006A-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100314**	**Date of Collection:**	**10/2/95**
Dil. Factor:	**2700**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	1400	2100
1,1-Dichloroethene	1400	Not Detected
Freon 113	1400	Not Detected
cis-1,2-Dichloroethene	1400	27000
Chloroform	1400	2500
1,1,1-Trichloroethane	1400	Not Detected
Benzene	1400	3700
Trichloroethene	1400	720000
Toluene	1400	1900
Tetrachloroethene	1400	Not Detected
m,p-Xylene	1400	5400
o-Xylene	1400	3800
Acetone	5400	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**105**	**70-130**
Toluene-d8	**95**	**70-130**
4-Bromofluorobenzene	**77**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Method Spike

ID#: 9510006A-05A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100302**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	% Recovery
Vinyl Chloride	0.50	82
1,1-Dichloroethene	0.50	95
Freon 113	0.50	92
cis-1,2-Dichloroethene	0.50	97
Chloroform	0.50	95
1,1,1-Trichloroethane	0.50	99
Benzene	0.50	89
Trichloroethene	0.50	82
Toluene	0.50	90
Tetrachloroethene	0.50	82
m,p-Xylene	0.50	93
o-Xylene	0.50	89
Acetone	2.0	103

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**99**	**70-130**
Toluene-d8	**99**	**70-130**
4-Bromofluorobenzene	**95**	**70-130**

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 9510006A-06A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	**5100305**	**Date of Collection:**	**NA**
Dil. Factor:	**1.0**	**Date of Analysis:**	**10/3/95**
Analyst's Initials:	**MH**		

Compound	Det. Limit (ppbv)	Amount (ppbv)
Vinyl Chloride	0.50	Not Detected
1,1-Dichloroethene	0.50	Not Detected
Freon 113	0.50	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected
Chloroform	0.50	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected
Benzene	0.50	Not Detected
Trichloroethene	0.50	Not Detected
Toluene	0.50	Not Detected
Tetrachloroethene	0.50	Not Detected
m,p-Xylene	0.50	Not Detected
o-Xylene	0.50	Not Detected
Acetone	2.0	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	**107**	**70-130**
Toluene-d8	**93**	**70-130**
4-Bromofluorobenzene	**71**	**70-130**

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN AND PRESS FIRMLY
THE INSTRUCTIONS FOR FILLING OUT
THIS FORM ARE ON THE BACK

RADIAN CORPORATION
10389 ROCKINGHAM ROAD, SACRAMENTO, CA 95827
(916) 362-5332

TASK OR SUB TASK (one per form):	LABORATORY NAME & ADDRESS:
CONTRACT NAME:	Ste B
CHARGE NUMBER:	95130

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF UNITS	UNIT QUANTITY	MATRIX CODE	PRESERVATIVE	TYPE OF ANALYSIS	QC	DISPOSAL DUE DATE	DISPOSAL'S INITIALS
01A									+ (P)		2 HG	
02A									(P)		2 SU	
03A		10/1			1				(P)		2 Hg	
04A		10/2							(P)		15 Hg	
									P Field parameter			
									Grease			
									TCLP			
									VOA PESTICIDE			
									ND using			
									TO-14			

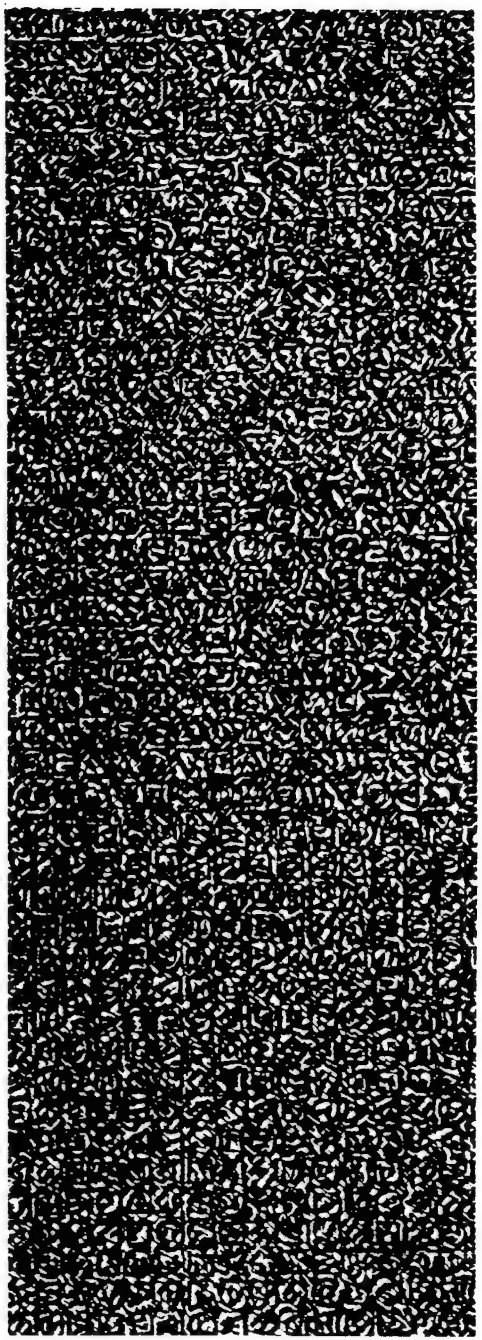
RELEASED BY	DATE	TIME	COMMENTS:
	/ /	:	

RECEIVED BY	DATE	TIME	RELINQUISED BY	DATE	TIME
	/ /	:		/ /	:
	/ /	:		10/2	14:20
ATL	10/2/95	14:20		/ /	:
	/ /	:		/ /	:
	/ /	:		/ /	:

DISPOSAL CONFIRMED BY	DATE	TIME	CHAIN-OF-CUSTODY RETURNED BY	DATE	TIME
	/ /	:		/ /	:

WHITE - COORDINATOR / GOLDENROD - PROJECT DIRECTOR / PINK - SAMPLE CONTROL / YELLOW - LABORATORY / BLUE - LABORATORY RECEIPT

Custody Seal Intact? Y N None Temp:



10/12/95 15:07:28

RADIAN ANALYTICAL SERVICES
FPAS REPORT
TABLE OF CONTENTS

Work Order # 9509431

Client MCCLELLAN AFB
Facility
Client Code MCCLEL_TCLP

Certified By
Date 10/16/95

10/10/95
TCE 4 day TAT

10/12/95 15:07:28

WORK ORDER SUMMARY

Report RADIAN CORPORATION
To 10395 OLD PLACERVILLE ROAD
SACRAMENTO, CA 95827
Attention CAROL GULIZA-KONTONICKAS
Phone SAC

Prepared Radian Analytical Services
By 14046 Summit Dr., Bldg. B
P. O. Box 201088
Austin, TX 78720-1088
512/244-0855
CSC JALINDSEY

Client Code MCCLEL_TCLP
Client MCCLELLAN AFB
Facility
Work ID TCLP-8240

Case # NA
SDG # NA
RAS # 50601AJAL

Work Order # 9509431
Page 1

RCN 602-125-80-10

Project Sample ID/ Description	Lab Sample ID	Test Code(s)	Method Desciption
POLY-APN-015	01A LEACHATE	826SWBTL	Volatile Organics by GC/MS
		DISPWA00	Sample Disposal Charge
TBLK953973	02A LEACHATE	826SWBTL	Volatile Organics by GC/MS
POLY-APN-015	03A MS	826SWBMS	Volatile Organics by GC/MS
	04A MSD	826SWBMS	Volatile Organics by GC/MS

FLAG DEFINITIONS

Flag	Definition
< DL	Result less than stated Detection Limit and greater than or equal to zero.
NA	Analyte concentration not available for this analysis.
NC	RPD and/or % Recovery not calculated. See Narrative for explanation.
ND	Not detected. No instrument response for analyte or result less than zero.
NR	Not reported. Result greater than or equal to stated Detection Limit and less than specified Reporting Limit.
NS	Analyte not spiked.
B	Analyte detected in method blank at concentration greater than the Reporting Limit (and greater than zero).
C	Confirming data obtained using second GC column or GCMS.
E	Analyte concentration exceeded calibration range.
F	Interference or coelution suspected. See Narrative for explanation.
H	Presence of analyte previously confirmed by historical data.
I	Analyte identification suspect. See Narrative for explanation.
J	Result is less than stated Detection Limit but greater than or equal to specified Reporting Limit.
K	Peak did not meet method identification criteria. Analyte not detected on other GC column.
M	Result modified from previous Report. See Narrative for explanation.
P	Analyte not confirmed. Results from primary and secondary GC columns differ by greater than a factor of 3.
Q	QC result does not meet tolerance in Protocol Specification.
R	Result reported elsewhere.
S	Analyte concentration obtained using Method of Standard Additions (MSA).
T	Second column confirmational analysis not performed.
X	See Narrative for explanation.
Y	See Narrative for explanation.
Z	See Narrative for explanation.

ANALYTICAL PROTOCOL SUMMARY

Client MCCLELLAN AFB
Facility
Client Code MCCLEL_TCLP
Method Volatile Organics SW8260

Specification # 826S

Project Sample ID/Description	Lab Sample ID	Test Code(s)	Extraction/Digestion Batch #	Analysis Batch #
POLY-APN-015	9509431-01A	826SWBTL	NA	MSMSDA51008211602
POLY-APN-015	9509431-01A	826SWBTL	NA	MSMSDA51008211602

Method Volatile Organics SW8260A
Test Code 826SWBTL

Project Sample ID:	POLY-APN-015		POLY-APN-015					
Lab ID:	9509431-01A LEACHA		9509431-01A LEACHA					
File ID:	F1008519		F1008520					
Date Collected:	09/29/95		09/29/95					
Date Prepared:								
Date Analyzed:	10/09/95 12:40:00		10/09/95 13:31:00					
Dilution Factor:	1000		100					
Matrix:	Water		Water					
Units:	ug/L		ug/L					
Report as:	received		received					
Column:								
Analyte	Conc.	DL	Conc.	DL	Conc.	DL	Conc.	DL
Benzene	ND	503	60.0	50.3				
2-Butanone(MEK)	ND	2320	ND	232				
Carbon tetrachloride	ND	566	ND	56.6				
Chlorobenzene	ND	591	ND	59.1				
Chloroform	ND	678	ND	67.8				
1,2-Dichloroethane	5830	791	6550	79.1				
1,1-Dichloroethene	ND	802	ND	80.2				
Tetrachloroethene	ND	674	ND	67.4				
Trichloroethene	15600	438	14900 J+	43.8				
Vinyl chloride	ND	738	ND	73.8				

high MS recovery
126%

Method Volatile Organics SW8260A

Test Code 826SWBTL

Project Sample ID:	POLY-APN-015	POLY-APN-015		
Lab ID:	9509431-01A LEACHA	9509431-01A LEACHA		
File ID:	F1008519	F1008520		
Date Collected:	09/29/95	09/29/95		
Date Prepared:				
Date Analyzed:	10/09/95 12:40:00	10/09/95 13:31:00		
Dilution Factor:	1000	100		
Matrix:	Water	Water		
Units:	ug/L	ug/L		
Report as:	received	received		
Column:				
Analyte	Conc. DL	Conc. DL	Conc. DL	Conc. DL

Surrogate(s)	Recovery %	Recovery %	Recovery %	Recovery %
1,4-Bromofluorobenzene	89	90		
1,2-Dichloroethane-d4	65	78		
Toluene-d8	95	92		

10/12/95 15:07:28

INITIAL CALIBRATION

Work Order # 9509431
Page 6

Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
Dichlorodifluoromethane	2.999 10	2.628 20	2.692 50	2.752 100	2.775 200		2.77	5.08
Chloromethane SPCC	3.238 10	2.890 20	2.806 50	2.844 100	2.713 200		2.90	6.93
Vinyl chloride CCC	2.747 10	2.489 20	2.371 50	2.440 100	2.252 200		2.46	7.46
Bromomethane	1.773 10	1.609 20	1.577 50	1.575 100	1.497 200		1.61	6.35
Chloroethane	1.123 10	0.964 20	0.966 50	0.937 100	0.917 200		0.981	8.33
Trichlorofluoromethane	2.972 10	2.633 20	2.183 50	2.563 100	2.368 200		2.54	11.7
Acrolein	0.337 50	0.329 100	0.301 250	0.322 500	0.298 1000		0.317	5.42
Acetonitrile	0.135 50	0.123 100	0.131 250	0.127 500	0.130 1000		0.129	3.48
Acetone	0.587 10	0.430 20	0.395 50	0.520 100	0.456 200		0.478	16.0
Iodomethane	3.079 10	2.980 20	3.067 50	3.017 100	2.956 200		3.02	1.77

10/12/95 15:07:28

INITIAL CALIBRATION Cont'd

Work Order # 9509431
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Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
1,1-Dichloroethene CCC	1.481 10	1.404 20	1.427 50	1.368 100	1.349 200		1.41	3.69
Carbon disulfide	5.131 10	4.959 20	4.968 50	4.890 100	4.779 200		4.95	2.60
1,1,2-Trichlorotrifluoroethane	1.555 10	1.497 20	1.553 50	1.462 100	1.480 200		1.51	2.82
Acrylonitrile	0.595 10	0.559 20	0.609 50	0.579 100	0.572 200		0.583	3.36
3-Chloropropene	2.492 10	2.408 20	2.366 50	2.239 100	2.076 200		2.32	7.01
Methylene chloride	2.609 10	2.334 20	2.285 50	1.562 100	1.488 200		2.06	24.4
trans-1,2-Dichloroethene	1.395 10	1.361 20	1.381 50	1.327 100	1.318 200		1.36	2.46
Propanenitrile	0.163 50	0.152 100	0.155 250	0.171 500	0.171 1000		0.162	5.43
1,1-Dichloroethane SPCC	2.338 10	2.253 20	2.257 50	2.194 100	2.169 200		2.24	2.92
Vinyl acetate	3.146 10	2.756 20	2.802 50	2.758 100	2.641 200		2.82	6.79

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INITIAL CALIBRATION Cont'd

Work Order # 9509431
Page 8

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
2-Chloro-1,3-butadiene	1.113 50	1.215 100	1.077 250	0.938 500	0.804 1000		1.03	15.6
2-Butanone(MEK)	0.605 10	0.568 20	0.572 50	0.534 100	0.485 200		0.553	8.23
Tetrahydrofuran	0.146 10	0.173 20	0.190 50	0.208 100	0.191 200		0.182	12.9
cis-1,2-Dichloroethene	1.308 10	1.279 20	1.284 50	1.266 100	1.254 200		1.28	1.59
Chloroform CCC	2.216 10	2.062 20	2.113 50	2.069 100	2.068 200		2.11	3.09
1,1,1-Trichloroethane	2.144 10	2.077 20	2.136 50	2.093 100	2.138 200		2.12	1.44
1,2-Dichloroethane	2.117 10	2.097 20	2.133 50	2.084 100	2.071 200		2.10	1.19
Benzene	1.180 10	1.141 20	1.150 50	1.107 100	1.040 200		1.12	4.76
Carbon tetrachloride	0.335 10	0.333 20	0.343 50	0.344 100	0.342 200		0.339	1.48
2-Hexanone	0.458 10	0.470 20	0.472 50	0.449 100	0.459 200		0.462	2.05

INITIAL CALIBRATION Cont'd

Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
4-Methyl-2-pentanone(MIBK)	0.281 10	0.268 20	0.292 50	0.281 100	0.284 200		0.281	3.07
1,2-Dichloropropane CCC	0.329 10	0.322 20	0.326 50	0.320 100	0.296 200		0.319	4.11
Trichloroethene	0.324 10	0.312 20	0.319 50	0.312 100	0.312 200		0.316	1.74
Dibromomethane	0.221 10	0.211 20	0.211 50	0.212 100	0.206 200		0.212	2.57
Bromodichloromethane	0.357 10	0.361 20	0.373 50	0.375 100	0.376 200		0.368	2.38
Methyl methacrylate	0.205 10	0.202 20	0.215 50	0.220 100	0.219 200		0.212	3.88
2-Chloroethyl vinyl ether	0.226 10	0.220 20	0.221 50	0.227 100	0.218 200		0.222	1.76
trans-1,3-Dichloropropene	0.483 10	0.472 20	0.491 50	0.488 100	0.479 200		0.483	1.55
cis-1,3-Dichloropropene	0.425 10	0.419 20	0.442 50	0.438 100	0.418 200		0.428	2.57
Toluene CCC	0.709 10	0.685 20	0.702 50	0.681 100	0.648 200		0.685	3.46

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INITIAL CALIBRATION Cont'd

Work Order # 9509431
Page 10

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
1,1,2-Trichloroethane	0.623 10	0.601 20	0.627 50	0.620 100	0.610 200		0.616	1.72
Ethyl methacrylate	0.868 10	0.886 20	0.914 50	0.934 100	0.937 200		0.908	3.32
Dibromochloromethane	0.699 10	0.695 20	0.718 50	0.741 100	0.747 200		0.720	3.29
1,2-Dibromoethane	0.705 10	0.683 20	0.700 50	0.695 100	0.692 200		0.695	1.20
Tetrachloroethene	0.556 10	0.555 20	0.542 50	0.536 100	0.557 200		0.549	1.74
Chlorobenzene SPCC	1.884 10	1.808 20	1.847 50	1.819 100	1.808 200		1.83	1.78
1,1,1,2-Tetrachloroethane	0.628 10	0.607 20	0.622 50	0.635 100	0.645 200		0.627	2.27
Ethylbenzene	0.959 10	0.925 20	0.952 50	0.936 100	0.931 200		0.941	1.53
m&p-Xylene	1.192 20	1.146 40	1.152 100	1.130 200	1.096 400		1.14	3.05
Bromoform SPCC	0.404 10	0.420 20	0.450 50	0.473 100	0.488 200		0.447	7.86

10/12/95 15:07:28

INITIAL CALIBRATION Cont'd

Work Order # 9509431
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Sol'n # #MS-VOA-STD-3 p.24
Method Volatile Organics SW8260A
Test Code 826SWB00

Initial Calibration # MSDA950911000000
Calibration Date 09/11/95 00:00:00

Instrument MSDA
Analyst MER
Reviewer APS

Analytes	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response Factor / Reference Conc. ug/L	Response / Reference Conc.	$\overline{RF}$	% RSD
Styrene	2.147 10	2.037 20	1.989 50	2.032 100	2.004 200		2.04	3.04
o-Xylene	1.136 10	1.113 20	1.127 50	1.115 100	1.119 200		1.12	0.846
trans-1,4-Dichloro-2-butene	0.184 10	0.198 20	0.209 50	0.221 100	0.226 200		0.208	8.24
1,1,2,2-Tetrachloroethane SPCC	0.786 10	0.784 20	0.790 50	0.800 100	0.803 200		0.793	1.07
1,2,3-Trichloropropane	0.585 10	0.595 20	0.592 50	0.594 100	0.612 200		0.596	1.67
1,3-Dichlorobenzene	1.280 10	1.293 20	1.342 50	1.370 100	1.391 200		1.34	3.59
1,4-Dichlorobenzene	1.315 10	1.310 20	1.375 50	1.396 100	1.424 200		1.36	3.68
1,2-Dichlorobenzene	1.207 10	1.226 20	1.287 50	1.300 100	1.344 200		1.27	4.40
1,2-Dibromo-3-chloropropane	0.099 10	0.121 20	0.134 50	0.141 100	0.149 200		0.129	15.2

ANALYSIS BATCH SUMMARY

Analysis Batch # MSMSDA51008211602

Method Volatile Organics SW8260
Test Code 826SWB00
Initial Calibration # MSDA950911000000
Calibration Date 09/11/95

Analysis Start Date/Time 10/08/95 21:16:00
Analysis Stop Date/Time 10/09/95 19:49:00

Instrument MSDA
Analyst MER
Reviewer APS

Sequence/Analysis Time		Project Sample ID	Lab Sample ID	Sample Type	Analysis File #
1	10/08/95 21:16:00		BFB	GCMS Tune	F1008507
2	10/08/95 21:29:00		SB	Laboratory Blank	F1008508
3	10/08/95 21:53:00		VSTDCAL	Continuing Calibration Check	F1008509
4	10/08/95 22:51:00		VSTDCAL	Continuing Calibration Check	F1008510
5	10/08/95 23:17:00		SB	Laboratory Blank	F1008511
6	10/08/95 23:48:00		LCS956007	Lab Control Sample	F1008512
7	10/09/95 00:12:00		LCSD956008	Lab Control Sample Dup	F1008513
8	10/09/95 00:36:00		BLK954015	Laboratory Blank	F1008514
9	10/09/95 10:11:00		BFB	GCMS Tune	F1008515
10	10/09/95 10:24:00		SB	Laboratory Blank	F1008516
11	10/09/95 10:48:00		VSTDCAL	Continuing Calibration Check	F1008517
12	10/09/95 11:47:00		VSTDCAL	Continuing Calibration Check	F1008518
13	10/09/95 12:40:00	POLY-APN-015	9509431-01A	Sample	F1008519
14	10/09/95 13:31:00	POLY-APN-015	9509431-01A	Sample	F1008520
15	10/09/95 14:17:00	POLY-APN-015	9509431-03A	Matrix Spike	F1008521
16	10/09/95 14:41:00	POLY-APN-015	9509431-04A	Matrix Spike Dup	F1008522
17	10/09/95 15:06:00		SB	Laboratory Blank	F1008523
18	10/09/95 15:30:00	TBLK953973	9509431-02A	Laboratory Blank	F1008524
27	10/09/95 19:24:00		SB	Laboratory Blank	F1008533

RESULTS

Extraction Batch # _____
Analysis Batch # MSMSDA51008211602
TCLP Batch # TCTCLP509281755

Project Sample ID POLY-APN-015
Lab Sample ID 9509431-01A LEACHA
File # F1008519
Method Volatile Organics SW8260A
Test Code 826SWBTL

Date Collected 09/29/95
Date Received 09/23/95
Date Prepared _____
Date Analyzed 10/09/95 12:40:00

Instrument MSDA
Column _____
Analyst MER
Reviewer APS

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Matrix W
Report As received
% Moisture _____

Aliquot Mass/Volume 5.0 (mL)
Extract/Digestate Volume 5.0 (mL)
Dilution Factor 1000

Analyte	CAS #	Measured Concentration ug/L	Detection Limit ug/L	Reporting Limit ug/L
Benzene	71-43-2	ND	503	503
2-Butanone(MEK)	78-93-3	ND	2320	2320
Carbon tetrachloride	56-23-5	ND	566	566
Chlorobenzene	108-90-7	ND	591	591
Chloroform	67-66-3	ND	678	678
1,2-Dichloroethane	107-06-2	5830	791	791
1,1-Dichloroethene	75-35-4	ND	802	802
Tetrachloroethene	127-18-4	ND	674	674
Trichloroethene	79-01-6	15600	438	438
Vinyl chloride	75-01-4	ND	738	738

Surrogate(s)	CAS #	Spiked Conc. ug/L	Measured Concentration ug/L	Recovery %	Specification Limits Low %	Specification Limits High %
1,4-Bromofluorobenzene	460-00-4	50000	44700	89	75	113
1,2-Dichloroethane-d4	17070-07-0	50000	32400	65	56	144
Toluene-d8	2037-26-5	50000	47500	95	85	115

RESULTS

Work Order # 9509431
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Extraction Batch # _____
Analysis Batch # MSMSDA51008211602
TCLP Batch # TCTCLP509281755

Project Sample ID POLY-APN-015 | Date Collected 09/29/95 | Instrument MSDA | Reporting Subset ___ | Matrix W
Lab Sample ID 9509431-01A LEACHA | Date Received 09/23/95 | Column _____ | Spikes Subset ___ | Report As received
File # F1008520 | Date Prepared _____ | Analyst MER | Specs Subset ___ | % Moisture _____
Method Volatile Organics SW8260A | Date Analyzed 10/09/95 13:31:00 | Reviewer APS
Test Code 826SWBTL

Analyte	CAS #	Aliquot Mass/Volume 5.0 (mL) Extract/Digestate Volume 5.0 (mL) Dilution Factor 100 — Measured Concentration ug/L	Detection Limit ug/L	Reporting Limit ug/L
Benzene	71-43-2	60.0	50.3	50.3
2-Butanone(MEK)	78-93-3	ND	232	232
Carbon tetrachloride	56-23-5	ND	56.6	56.6
Chlorobenzene	108-90-7	ND	59.1	59.1
Chloroform	67-66-3	ND	67.8	67.8
1,2-Dichloroethane	107-06-2	6550	79.1	79.1
1,1-Dichloroethene	75-35-4	ND	80.2	80.2
Tetrachloroethene	127-18-4	ND	67.4	67.4
Trichloroethene	79-01-6	14900	43.8	43.8
Vinyl chloride	75-01-4	ND	73.8	73.8

Surrogate(s)	CAS #	Spiked Conc. ug/L	Measured Concentration ug/L	Recovery %	Specification Limits Low %	Specification Limits High %
1,4-Bromofluorobenzene	460-00-4	5000	4520	90	75	113
1,2-Dichloroethane-d4	17070-07-0	5000	3880	78	56	144
Toluene-d8	2037-26-5	5000	4610	92	85	115

LABORATORY BLANK INFORMATION

Extraction Batch # _____
Analysis Batch # MSMSDA51008211601

Lab Sample ID BLK954015
File # F1008514
Method Volatile Organics SW8260A
Test Code 826SWBTL

Date Prepared _____
Date Analyzed 10/09/95 00:36:00

Instrument MSDA
Column _____
Analyst MER
Reviewer APS

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Matrix W

Analyte	Measured Conc. ug/L (Aliquot Mass/Volume 5.0 mL; Extract/Digestate Volume 5.0 mL; Dilution Factor 1)	Detection Limit ug/L	Reporting Limit ug/L
Benzene	ND	0.503	0.503
2-Butanone(MEK)	ND	2.32	2.32
Carbon tetrachloride	ND	0.566	0.566
Chlorobenzene	ND	0.591	0.591
Chloroform	ND	0.678	0.678
1,2-Dichloroethane	ND	0.791	0.791
1,1-Dichloroethene	ND	0.802	0.802
Tetrachloroethene	ND	0.674	0.674
Trichloroethene	ND	0.438	0.438
Vinyl chloride	ND	0.738	0.738

Surrogate(s)	Spiked Conc. ug/L	Measured Conc. ug/L	Recovery %	Specification Limits Low %	Specification Limits High %
1,4-Bromofluorobenzene	50.0	45.0	90	83	113
1,2-Dichloroethane-d4	50.0	33.0	66	59	135
Toluene-d8	50.0	47.1	94	87	113

LABORATORY BLANK INFORMATION

Extraction Batch # _____
Analysis Batch # MSMSDA51008211602
TCLP Batch # TCTCLP509281755

Lab Sample ID 9509431-02A LEACHA
File # F1008524
Method Volatile Organics SW8260A
Test Code 826SWBTL

Date Prepared _____
Date Analyzed 10/09/95 15:30:00

Instrument MSDA
Column _____
Analyst MER
Reviewer APS

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Matrix W

Analyte	Aliquot Mass/Volume 5.0 (mL) Extract/Digestate Volume 5.0 (mL) Dilution Factor 10 — Measured Conc. ug/L	Detection Limit ug/L	Reporting Limit ug/L
Benzene	ND	5.03	5.03
2-Butanone(MEK)	ND	23.2	23.2
Carbon tetrachloride	ND	5.66	5.66
Chlorobenzene	ND	5.91	5.91
Chloroform	ND	6.78	6.78
1,2-Dichloroethane	ND	7.91	7.91
1,1-Dichloroethene	ND	8.02	8.02
Tetrachloroethene	ND	6.74	6.74
Trichloroethene	ND	4.38	4.38
Vinyl chloride	ND	7.38	7.38

Surrogate(s)	Spiked Conc. ug/L	Measured Conc. ug/L	Recovery %	Specification Limits Low %	Specification Limits High %
1,4-Bromofluorobenzene	500	443	88	75	113
1,2-Dichloroethane-d4	500	324	65	56	144
Toluene-d8	500	477	95	85	115

LABORATORY CONTROL SAMPLE

Extraction Batch # _____
Analysis Batch # MSMSDA51008211600

Method Volatile Organics SW8260A
Test Code 826SWBTL

Date Prepared _____
Date Analyzed 10/09/95 00:12:00

Instrument MSDA
Column _____
Analyst MER
Reviewer APS

Reporting Subset ___ ___
Spikes Subset ___ ___
Specs Subset ___ ___

Matrix W
Report As received
% Moisture _____

Aliquot Mass or Vol 5.0 (mL)
Extract Mass or Vol 5.0 (mL)

Control Std. #	Vol. Added	Surrogate Sol'n #	Vol. Added
LCS	5 uL	1,2-DCA-d4	5 uL
		Toluene-d8	5 uL
		1,4-BFB	5 uL

LCS Lab Sample ID LCS956007
File ID F1008512

LCS Duplicate Lab Sample ID LCSD956008
File ID F1008513

Analyte	Spiked Conc. ug/L	Measured Conc. ug/L	Rec. %	Spiked Conc. ug/L	Measured Conc. ug/L	Rec. %	Recovery Spec. Limits Low %	Recovery Spec. Limits High %	RPD Result %	RPD Spec. Limit %
Benzene	20.0	21.1	105	20.0	21.6	108	77	135	2.8	10
2-Butanone(MEK)	100	123	123	100	139	139	0.1	182	12	50
Carbon tetrachloride	20.0	14.6	73	20.0	14.6	73	70	140	0	10
Chlorobenzene	20.0	21.1	105	20.0	21.5	107	74	124	1.9	12
Chloroform	20.0	19.1	95	20.0	19.7	98	66	130	3.1	16
1,2-Dichloroethane	20.0	15.0	75	20.0	13.4	67	58	142	11	26
1,1-Dichloroethene	20.0	18.3	92	20.0	18.5	93	45	149	1.1	29
Tetrachloroethene	20.0	22.2	111	20.0	22.5	113	68	126	1.8	11
Trichloroethene	20.0	19.4	97	20.0	20.0	100	75	119	3.0	11
Vinyl chloride	20.0	14.5	72	20.0	14.6	73	37	146	1.4	38

Surrogate(s)									
1,4-Bromofluorobenzene	50.0	46.8	94	50.0	46.1	92	83	113	
1,2-Dichloroethane-d4	50.0	36.7	74	50.0	32.7	65	59	135	
Toluene-d8	50.0	46.5	93	50.0	47.7	96	87	113	

MATRIX SPIKE(S)

Work Order # 9509431
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Extraction Batch #
Analysis Batch # MSMSDA51008211602
TCLP Batch # TCTCLP509281755

Project Sample ID POLY-APN-015
Method Volatile Organics SW8260A
Test Code 826SWBMS

Date Collected 09/29/95
Date Received 09/23/95
Date Prepared
Date Analyzed 10/09/95 14:41:00

Instrument MSDA
Column
Analyst MER
Reviewer APS

Reporting Subset
Spikes Subset
Specs Subset

Matrix W
Report As received
% Moisture

Spike Sol'n # / Vol. Added
Matrix spike 5 uL

Surrogate Sol'n / Vol. Added
1,2-DCA-d4 5 uL
Toluene-d8 5 uL
1,4-BFB 5 uL

Sample Lab Sample ID 9509431-01A LEACHA
File # F1008520
Aliquot Mass/Vol 5.0 (mL)
Extract Mass/Vol 5.0 (mL)
Dil Fact. 100

Spiked Sample Lab Sample ID 9509431-03A MS
File # F1008521
Aliquot Mass/Vol 5.0 (mL)
Extract Mass/Vol 5.0 (mL)
Dil Fact. 100

Spiked Sample Dup Lab Sample ID 9509431-04A MSD
File # F1008522
Aliquot Mass/Vol 5.0 (mL)
Extract Mass/Vol 5.0 (mL)
Dil Fact. 100

Analyte	Spike Sol'n Conc. ug/L	Measured Conc. ug/L	Spiked Conc. ug/L	Measured Conc. ug/L	Rec. %	Spiked Conc. ug/L	Measured Conc. ug/L	Rec. %	Recovery Specification Limits Low %	Recovery Specification Limits High %	RPD Result %	RPD Specification Limit %
Benzene	50000	60.0	5000	5310	105	5000	5510	109	77	135	3.7	10
Chlorobenzene	50000	ND	5000	5590	112	5000	5740	115	74	124	2.6	12
1,1-Dichloroethene	50000	ND	5000	4390	88	5000	4590	92	45	149	4.4	29
Toluene	50000	ND	5000	5320	106	5000	5470	109	79	131	2.8	12
Trichloroethene	50000	14900	5000	20500 E	113	5000	21200 E	126 Q	75	119	11	11

Surrogate(s)												
1,4-Bromofluorobenzene	50000	4520	5000	4630	92	5000	4620	92	75	113		
1,2-Dichloroethane-d4	50000	3880	5000	3280	66	5000	3280	66	56	144		
Toluene-d8	50000	4610	5000	4720	94	5000	4730	94	85	115		

CONTINUING(OR DAILY) CALIBRATION VERIFICATION

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008510
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/08/95 22:51:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits	
				Low %	High %
Acetone	64.0	50.0	128		
Acetonitrile	182	250	73		
Acrolein	185	250	74		
Acrylonitrile	42.6	50.0	85		
Benzene	52.8	50.0	106		
Bromodichloromethane	42.9	50.0	86		
Bromoform	42.5	50.0	85		
Bromomethane	43.5	50.0	87		
2-Butanone(MEK)	58.7	50.0	117		
Carbon disulfide	44.5	50.0	89		
Carbon tetrachloride	39.7	50.0	80		
Chlorobenzene	55.2	50.0	110		
Chloroethane	54.8	50.0	110		
2-Chloroethyl vinyl ether	31.0	50.0	62		
Chloroform	49.7	50.0	99	75	125
Chloromethane	38.8	50.0	78		
3-Chloropropene	48.2	50.0	96		
1,2-Dibromo-3-chloropropane	36.0	50.0	72		
Dibromochloromethane	46.2	50.0	92		
1,2-Dibromoethane	49.5	50.0	99		
Dibromomethane	42.9	50.0	86		
trans-1,4-Dichloro-2-butene	36.7	50.0	73		
1,2-Dichlorobenzene	48.9	50.0	98		
1,3-Dichlorobenzene	51.2	50.0	102		
1,4-Dichlorobenzene	50.4	50.0	101		

CONTINUING (OR DAILY) CALIBRATION VERIFICATION (Cont'd)

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008510
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/08/95 22:51:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits Low %	Recovery Specification Limits High %
Dichlorodifluoromethane	45.2	50.0	90		
1,1-Dichloroethane	51.1	50.0	102		
1,2-Dichloroethane	39.2	50.0	78		
1,1-Dichloroethene	47.1	50.0	94	75	125
cis-1,2-Dichloroethene	56.6	50.0	113		
trans-1,2-Dichloroethene	54.1	50.0	108		
1,2-Dichloropropane	46.1	50.0	92	75	125
cis-1,3-Dichloropropene	40.8	50.0	82		
trans-1,3-Dichloropropene	43.7	50.0	88		
Ethyl methacrylate	46.8	50.0	94		
Ethylbenzene	56.1	50.0	112	75	125
2-Hexanone	47.6	50.0	95		
Iodomethane	46.2	50.0	92		
Methyl methacrylate	43.4	50.0	87		
4-Methyl-2-pentanone(MIBK)	40.6	50.0	81		
Methylene chloride	51.5	50.0	103		
Propanenitrile	240	250	96		
Styrene	50.2	50.0	100		
1,1,1,2-Tetrachloroethane	47.8	50.0	96		
1,1,2,2-Tetrachloroethane	45.4	50.0	91		
Tetrachloroethene	59.7	50.0	119		
Tetrahydrofuran	42.6	50.0	85		
Toluene	51.8	50.0	104	75	125
1,1,1-Trichloroethane	40.1	50.0	80		
1,1,2-Trichloroethane	50.9	50.0	102		

CONTINUING(OR DAILY) CALIBRATION VERIFICATION (Cont'd)

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008510
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/08/95 22:51:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits Low %	Recovery Specification Limits High %
Trichloroethene	51.5	50.0	103		
Trichlorofluoromethane	35.4	50.0	71		
1,2,3-Trichloropropane	46.7	50.0	93		
1,1,2-Trichlorotrifluoroethane	47.2	50.0	94		
Vinyl acetate	41.4	50.0	83		
Vinyl chloride	40.3	50.0	81	75	125
m&p-Xylene	111	100	111		
o-Xylene	54.2	50.0	108		

Surrogate(s)					
1,4-Bromofluorobenzene	48.2	50.0	96	83	113
1,2-Dichloroethane-d4	37.1	50.0	74	59	135
Toluene-d8	47.0	50.0	94	87	113

CONTINUING(OR DAILY) CALIBRATION VERIFICATION

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008518
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/09/95 11:47:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits Low %	Recovery Specification Limits High %
Acetone	60.2	50.0	120		
Acetonitrile	169	250	68		
Acrolein	169	250	68		
Acrylonitrile	38.8	50.0	78		
Benzene	51.1	50.0	102		
Bromodichloromethane	41.1	50.0	82		
Bromoform	38.8	50.0	78		
Bromomethane	41.7	50.0	83		
2-Butanone(MEK)	55.7	50.0	111		
Carbon disulfide	46.4	50.0	93		
Carbon tetrachloride	38.3	50.0	76		
Chlorobenzene	52.6	50.0	105		
Chloroethane	50.3	50.0	101		
2-Chloroethyl vinyl ether	31.1	50.0	62		
Chloroform	47.3	50.0	94	75	125
Chloromethane	37.2	50.0	74		
3-Chloropropene	44.6	50.0	89		
1,2-Dibromo-3-chloropropane	35.9	50.0	72		
Dibromochloromethane	41.6	50.0	83		
1,2-Dibromoethane	46.0	50.0	92		
Dibromomethane	41.3	50.0	83		
trans-1,4-Dichloro-2-butene	35.2	50.0	70		
1,2-Dichlorobenzene	49.3	50.0	99		
1,3-Dichlorobenzene	49.9	50.0	100		
1,4-Dichlorobenzene	49.6	50.0	99		

CONTINUING (OR DAILY) CALIBRATION VERIFICATION (Cont'd)

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008518
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/09/95 11:47:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits	
				Low %	High %
Dichlorodifluoromethane	44.0	50.0	88		
1,1-Dichloroethane	48.5	50.0	97		
1,2-Dichloroethane	32.5	50.0	65		
1,1-Dichloroethene	46.3	50.0	93	75	125
cis-1,2-Dichloroethene	55.5	50.0	111		
trans-1,2-Dichloroethene	49.7	50.0	100		
1,2-Dichloropropane	44.5	50.0	89	75	125
cis-1,3-Dichloropropene	38.7	50.0	77		
trans-1,3-Dichloropropene	42.6	50.0	85		
Ethyl methacrylate	43.2	50.0	86		
Ethylbenzene	53.8	50.0	108	75	125
2-Hexanone	45.1	50.0	90		
Iodomethane	46.4	50.0	93		
Methyl methacrylate	40.6	50.0	81		
4-Methyl-2-pentanone(MIBK)	40.3	50.0	81		
Methylene chloride	51.5	50.0	103		
Propanenitrile	221	250	88		
Styrene	48.1	50.0	96		
1,1,1,2-Tetrachloroethane	45.9	50.0	92		
1,1,2,2-Tetrachloroethane	43.1	50.0	86		
Tetrachloroethene	56.2	50.0	112		
Tetrahydrofuran	34.6	50.0	69		
Toluene	50.7	50.0	101	75	125
1,1,1-Trichloroethane	36.4	50.0	73		
1,1,2-Trichloroethane	47.2	50.0	94		

CONTINUING (OR DAILY) CALIBRATION VERIFICATION (Cont'd)

Work Order # 9509431
Page 24

Analysis Batch # MSMSDA51008211600
Initial Calibration # MSDA950911000000

Lab Sample ID VSTDCAL
File # F1008518
Method Volatile Organics SW8260A
Test Code 826SWB00

Date Analyzed 10/09/95 11:47:00

Reporting Subset ___
Spikes Subset ___
Specs Subset ___

Instrument MSDA
Analyst MER
Reviewer APS

Analyte	Measured Concentration ug/L	Reference Concentration ug/L	Recovery %	Recovery Specification Limits Low %	Recovery Specification Limits High %
Trichloroethene	50.1	50.0	100		
Trichlorofluoromethane	34.1	50.0	68		
1,2,3-Trichloropropane	43.5	50.0	87		
1,1,2-Trichlorotrifluoroethane	48.8	50.0	98		
Vinyl acetate	36.4	50.0	73		
Vinyl chloride	39.4	50.0	79	75	125
m&p-Xylene	106	100	106		
o-Xylene	52.1	50.0	104		

Surrogate(s)					
1,4-Bromofluorobenzene	47.7	50.0	96	83	113
1,2-Dichloroethane-d4	32.1	50.0	64	59	135
Toluene-d8	47.7	50.0	95	87	113

ANALYTICAL PROTOCOL SUMMARY
COMMENTS/NARRATIVE

Method Volatile Organics SW8260 Specification# _____

Lab Sample ID / File ID	Project Sample ID/Description	Analyte	Flag	Comment/Narrative	Corrective Action

QUALITY CONTROL EXCEPTION REPORT **REPORT COPY 9509431**
LEVEL 2 - ANALYTICAL

QCER # 951008-06 **Revised: 10/09/95**

Analyst: THERESA_SHAW Instrument: MSDA Date Analyzed: 10/08/95
Batch #: MSMSDA51008211600 Matrix: water Status: I
Prot Spec: 826MSB Analysis File #: F1008522

Lab Sample ID:	Client ID:	CSC:	Project Sample ID:
9509431-01A	MCCLEL_TCLP	JAL	POLY-APN-015

SAMPLE PREPARATION:

PROBLEM IDENTIFICATION
Sample Went Dry _
Loss of ____ % of Sample _
Emulsion Formed _
Blank Contamination _
Instrument _
Hold Time _
MS/MSD Not Available _
Instrument _
Other (Describe) _

CORRECTIVE ACTION TAKEN
Reprepare Sample _
Sample Sent for Analysis _
Resample _
Other (Describe) _

Comments:

SAMPLE ANALYSIS:

PROBLEM IDENTIFICATION
Surrogate Recovery _
MS/MSD Recovery X
LCS/LCSD Recovery _
MS/MSD Precision _
LCS/LCSD Precision _
Standard _
Blank Contamination _
Instrument _
Hold Time _
No MS/MSD Available for Batch _
Sample pH _
Dil. Due to Hi-Level Non-Target Analytes _
Serial Dilution _
Analytical Spike _
Internal Standard _
Other (Describe) _

PROBABLE CAUSE
Matrix Effect X
Instrument _
Spiking Error _
Contamination _
Coelution _
Unknown _
Other(Describe) _

CORRECTIVE ACTION TAKEN
Reprepare Sample _
Reanalyze Sample _
Reanalyze LCS/LCSD _
Recalibrate Instrument _
Analyze Out of Hold Time _
Prepare New Standard _
Flag Data X
Resample _
Analyze by MSA _
Perform Analytical Spike _
No Action Required _
Level 3 QCER to Follow _
Other (Describe) _

Comments: Sample 9509431-01A had TCE at 126% for the MSD which fails tol. limit of 75-119%. The parent sample had a high level of TCE (145 ppb) which causes fluctuations in the MS/MSD recoveries.All other MS/MSD analytes passed limits.TCE passed tol.limits in the LCS/D.

Distribution: CSC, Lab, Report ✓

QUALITY CONTROL EXCEPTION REPORT **REPORT COPY 9509431**
LEVEL 2 - ANALYTICAL

QCER # 951008-04 **Revised: 10/09/95**

Analyst: THERESA SHAW Instrument: MSDA Date Analyzed: 10/08/95
Batch #: MSMSDA51008211600 Matrix: water Status: I
Prot Spec: 826MSB Analysis File #: F1008512,13

Lab Sample ID:	Client ID:	CSC:	Project Sample ID:
9509501-15A			
9509431	MCCLEL_TCLP	JAL	
9510144			

SAMPLE PREPARATION:

PROBLEM IDENTIFICATION
Sample Went Dry _
Loss of ____ % of Sample _
Emulsion Formed _
Blank Contamination _
Instrument _
Hold Time _
MS/MSD Not Available _
Instrument _
Other (Describe) _

CORRECTIVE ACTION TAKEN
Reprepare Sample _
Sample Sent for Analysis _
Resample _
Other (Describe) _

Comments:

SAMPLE ANALYSIS:

PROBLEM IDENTIFICATION
Surrogate Recovery _
MS/MSD Recovery _
LCS/LCSD Recovery X
MS/MSD Precision _
LCS/LCSD Precision _
Standard _
Blank Contamination _
Instrument _
Hold Time _
No MS/MSD Available for Batch _
Sample pH _
Dil. Due to Hi-Level _
Non-Target Analytes
Serial Dilution _
Analytical Spike _
Internal Standard _
Other (Describe) _

PROBABLE CAUSE
Matrix Effect _
Instrument _
Spiking Error _
Contamination _
Coelution _
Unknown X
Other(Describe) _

CORRECTIVE ACTION TAKEN
Reprepare Sample _
Reanalyze Sample _
Reanalyze LCS/LCSD _
Recalibrate Instrument _
Analyze Out of Hold Time _
Prepare New Standard _
Flag Data X
Resample _
Analyze by MSA _
Perform Analytical Spike _
No Action Required _
Level 3 QCER to Follow _
Other (Describe) X
NOTIFIED CSC

Comments: C13DCP failed LCS tolerance limits at 66.56% for 9509501 tol. limits of 67-137%. It also failed in the LCS and LCSD at 66.56% & 69.74% respectively for 9509431 and 9510144 tol. limit of 73-145%. We were not analyzing for C13DCP for any of these wkorders.

Distribution: CSC, Lab, Report

RADIAN ANALYTICAL SERVICES
FPAS REPORT
TABLE OF CONTENTS

Work Order # 9509403

Client MCCLELLAN AFB
Facility
Client Code MCCLEL_TCLP

Certified By Julie A Peacock
Date 10/4/95

10/5/95
OK

10/03/95 16:41:44

WORK ORDER SUMMARY

Report RADIAN CORPORATION
To 10395 OLD PLACERVILLE ROAD
SACRAMENTO, CA 95827
Attention CAROL GULIZA-KONTONICKAS
Phone SAC

Prepared Radian Analytical Services
By 14046 Summit Dr., Bldg. B
P. O. Box 201088
Austin, TX 78720-1088
512/244-0855
CSC JALINDSEY

Client Code MCCLEL_TCLP
Client MCCLELLAN AFB
Facility
Work ID TCLP-8240

Case # NA
SDG # NA
RAS # 50601AJAL

Work Order # 9509403

RCN 602-125-80-10

Project Sample ID/ Description	Lab Sample ID	Test Code(s)	Method Desciption
POLY-APN-015	01A TCZP	TCZPSA00	TCLP leaching, ZHE
	01B TCZP	SPAREB00	Spare sample
TBLK	02A TCZP	TCZPSA00	TCLP leaching, ZHE

10/03/95 16:41:44

TCLP BATCH SUMMARY

TCLP Batch # TCLP950928174500

Work Order # 9509403

Method TCLP leaching, ZHE
Test Code TCZPSA00

Extraction Start Date/Time 09/28/95 17:45:00
Extraction Stop Date/Time 09/29/95 11:30:00

Analyst CMB
Reviewer _____

Sample	Project Sample ID	Lab Sample ID	Weight (g)	Volume (mL)
1	POLY-APN-015	9509403-01A	20.09	400
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Quality Control	Project Sample ID	Lab Sample ID	Weight (g)	Volume (mL)
Blank		TBLK953973	0	400

APPENDIX B

Field Data Sheets

Elastomeric Polymer Filter Media Treatability Study
System Parameters Data Sheet Field Log

Date	Time	Sampler's Initials	Polymer Blower System Clock	FAN SVE System Chart	Canister ID	Inlet Parameters: Flow Rates: Waste Stream	Inlet Parameters: Flow Rates: Dilution Air	Inlet Parameters: Flow Rates: Total	Inlet Parameters: Pressure or Vacuum	Inlet Parameters: Temp F	Outlet Parameters: Differential Pressure Vacuum	Outlet Parameters: Pressure or Vacuum	Outlet Parameters: Temp F	Sample Collected? ID
09/12	1440	CGK	NA	NC	A	37	Ø	37	~6"	108	NC	~6	88	N
09/12	1445	CGK	NA	NC	A	37	Ø	37	~6	108	NC	~6	88	N
09/12	1450	CGK	NA	989.6	A	35	Ø	35	5.5" Hg	108	NC	5.8" Hg	88	N CGK
9/12	1510	CGK	NA	989.8	A	36	Ø	36	5.5"	108	NC	6"	90	N
09/12	1550	CGK	NA	990.5	A	36	Ø	30	5.5"	108	NC	6"	90	N
09/12	1615	CGK	NA	990.9	A	36	Ø	36	5.8"	108	NC	6"	90	ØØ2 ØØ3
09/13	1105	CM	NA	NC	A	32	Ø	32 CGK	NC	NC	NC	NC	NC	N
09/13	1105	STOPPED SYSTEM			BLOWER									
09/13	1120	TURNED ON		URS SYSTEM	ONLY A	14	Ø	14	1"	80	2" H_2O	1"	75	N
09/13	1130	CGK	NA	1007.6	A	40	Ø	40	6"	80	6" H_2O	6"	75	N
09/13	1145	CGK	NA	1007.9	A	38	Ø	38	6"	88	6" H_2O	6"	78	N
09/13	1200	CGK	NA	1008.1	A	38	Ø	38	6"	90	6" H_2O	6"	78	ØØ4 ØØ5 ØØ6
09/13	1240	CGK	NA	1008.7	A	38	Ø	38	6"	94	6" H_2O	6"	80	N
09/14	0920	CGK	NA	1029.4	A	36	Ø	36	6"	64	5.5" H_2O	6"	64	ØØ7
09/15	1240	JWL	NC	NC	A	38	Ø	CGK 38	5.5" H_2O	NC	5.5" H_2O	6"	NC	ØØ8
09/18	1610	CGK	NC	1132.2	A	37	Ø	37	5.5	106	6" H_2O	6"	104	Ø10 ØØ9

Vacuum expressed in inches of mercury Pressure expressed in inches of water If sample collected, indicate corresponding sample ID(s)

AT 1625 ON 09/18 REDUCED INFLUENT FLOW BY HALF. CGK

Elastomeric Polymer Filter Media Treatability Study
System Parameters Data Sheet Field Log

Date	Time	Sampler's Initials	Polymer Blower System Clock	SVE System Chart	Canister ID	Inlet Parameters: Flow Rates: Waste Stream	Inlet Parameters: Flow Rates: Dilution Air	Inlet Parameters: Flow Rates: Total	Inlet Parameters: Pressure or Vacuum	Inlet Parameters: Temp F	Outlet Parameters: Differential Pressure Vacuum	Outlet Parameters: Pressure or Vacuum	Outlet Parameters: Temp F	Sample Collected? ID
09/18/95	1625	CGK	NC	1132.6	A	12	ϕ	12	2	106	2" Hg	2	104	N
09/19/95	0925	CGK	NC	1149.5	A	12	ϕ	12	2	86	1.6" Hg	2	78	ϕ11 ϕ12
09/19/95	1300-1615	BLOWER (HRS) OFF DUE TO CAT-OX SYSTEM SHUT DOWN										NO FLOW THROUGH POLYMER SYS		
09/20/95	0830	CJM	NC	—	A	12	ϕ	12	2.25	76	1.5" H_2O	2" Hg	76	ϕ13
09/20/95	0955	SAF	NC	—	A	12	ϕ	12	2.25	76	1.5" H_2O	2" Hg	80	ϕ14
9/21/95	0830	SAF	NC	—	A	12	ϕ	12	2.25	69	1.5 H_2O	2" Hg	71	N
09/22/95	0800	CGK	NC	—	A	12	ϕ	12	2.25	62	1.4" H_2O	2" Hg	68	N
9/22/95	0815	CGK	STOPPED TEST ON CANISTER					A						
9/22/95	0915	SAF	NC	NC	A	COLLECTED SAMPLE FOR TCLP ANALYSIS								ϕ15

Vacuum expressed in inches of mercury

Pressure expressed in inches of water

If sample collected, indicate corresponding sample ID(s)

Elastomeric Polymer Filter Media Treatability Study
System Parameters Data Sheet Field Log

Date	Time	Sampler's Initials	Polymer Blower System Clock	SVE System Chart	Canister ID	Inlet Parameters					Outlet Parameters			Sample Collected? ID
						Flow Rates			Pressure or Vacuum	Temp F	Differential Pressure Vacuum	Pressure or Vacuum	Temp F	
						Waste Stream	Dilution Air	Total						
09/22/95	0930	CEK	NC	NC	B	6	4	10	2.25	64	1" H_2O	2	70	N
09/22/95	1000	CGK	NC	NC	B	6	4	10	2.25	70	1.2" H_2O	2	78	Φ16 Φ17
09/22/95	1015	CGK	NC	NC	B	6	4	10	2.25	70	1.2" H_2O	2	78	N
9/25/95	0805	SAF	NC	NC	B	6	4	10	2.5	62	1.2" H_2O	2	60	Φ18 Φ19
9/26/95	0840	CGK	NC	NC	B	8	4	12	2.5	64	1.2" H_2O	2	60	N
9/26/95	1600	SAF	NC	NC	B	6	4	10	2.25" Hg	86	1.2" H_2O	2" Hg	82	N
9/27/95	1000	SAF	NC	NC	B	4	6	10	2.25" Hg	80	1.2" Hg	2" Hg	70	Φ20 Φ21
9/28/95	0905	CEK	NC	NC	B	4 ~~4~~ CEK	6	10	2.5	70	1.2" H_2O	2	62	N
9/29/95	0810	CEK	NC	NC	B	5	6	11	2.5" Hg	NC	1.0" H_2O	NC	55	Φ22 Φ23
9/29/95	0830	CGK	SHUT	OFF	FLOW	TO CANISTER		TO	CHANGE		OUT POLYMER		IN	A.

Vacuum expressed in inches of mercury

Pressure expressed in inches of water

If sample collected, indicate corresponding sample ID(s)

Elastomeric Polymer Filter Media Treatability Study
System Parameters Data Sheet Field Log

Date	Time	Sampler's Initials	Polymer Blower System Clock	SVE System Chart	Canister ID	Inlet Parameters: Flow Rates: Waste Stream	Inlet Parameters: Flow Rates: Dilution Air	Inlet Parameters: Flow Rates: Total	Inlet Parameters: Pressure or Vacuum	Inlet Parameters: Temp F	Outlet Parameters: Differential Pressure Vacuum	Outlet Parameters: Pressure or Vacuum	Outlet Parameters: Temp F	Sample Collected? ID
9/29/95	0935	CGK	NC	NC	C	7	13	20	2	64	1.2"H_2O	2	70	N
09/29/95	0945	CGK	NC	NC	C	8	10	18	2.25	64	1.4"H_2O	2	70	N
09/29/95	1000 -	1005 SHUT SYSTEM OFF TO				SWITCH OUT		FLOW METERS						
09/29/95	1010	CGK	NC	NC	C	13	Ø	13	2.5	78	1.0"H_2O	2	72	N
09/29/95	1030	CGK	NC	NC	C	13	Ø	13	2.25	80	1.0"H_2O	2	72	N
9/29/95	1105	SAF	NC	NC	C	13	Ø	13	2.25	84	1.0"H_2O	2"Hg	80	Ø24 Ø25
9/30/95	1630	SAF	NC	NC	C	12	Ø	12	2.1"Hg	100°F	1.1"H_2O	2"Hg	98°F	Ø26 Ø27
10/2/95	0830	SAF	NC	NC	C	13	Ø	13	2.25"Hg	68°F	1.0"H_2O	2"Hg	66°F	Ø28 Ø29
10/4/95	0935	SAF	NC	NC	C	12	Ø	12	2.1"Hg	76°F	1.0"H_2O	2"Hg	70°F	Ø30 Ø31
10/5/95	1155	SAF	NC	NC	C	10	Ø	10	1.75"Hg	98°F	1.0"H_2O	1.25"Hg	90°F	* N
10/6/95	1645	SAF	NC	NC	C	10	Ø	10	2.0"Hg	94°F	1.0"H_2O	1.5"Hg	96°F	Ø32 Ø33
				TEST CONCLUDED ON 10/10/95										

Vacuum expressed in inches of mercury Pressure expressed in inches of water If sample collected, indicate corresponding sample ID(s)

ON 10/05/95 CATOX UNIT WAS NOT OPERATING CONTINUOUSLY AT STABLE CONDITIONS. FLOW WAS AS HIGH AS 20 scfm.

APPENDIX C

Quality Assurance Data Assessment

POLYMER FILTER MEDIA QUALITY ASSURANCE/QUALITY CONTROL RESULTS

This section presents the results of the Quality Assurance/Quality Control (QA/QC) data assessment for 29 air samples analyzed by TO-14, and 14 air samples analyzed by Method 18 modified. The samples were analyzed by Air Toxics Ltd. (Folsom, California). Toxicity Characteristic Leaching Procedure (Method SW1311) was performed on one solid sample of filter media, and the leachate was analyzed by Method SW8260. This sample was analyzed by Radian Analytical Services (Austin, Texas). Quality control (QC) samples collected to assess contamination, precision and accuracy for the data set are presented in the following order: blanks (reagent); spikes (method, matrix and surrogate); duplicates (lab, matrix spike and field).

Overall, the QC sample results indicate good accuracy and precision for the sampling and analysis procedures. No reagent blank contamination was indicated. All of the method spikes (with the exception of 5), matrix spikes (with one exception), and surrogate spike recoveries and all of the Relative Percent Differences (RPDs) for matrix spike duplicate, lab control duplicate samples, and field duplicates met established data quality objectives.

Reagent Blanks

Reagent blanks are used to demonstrate that interferences or contamination from the analytical system, including glassware and reagents used in the analytical procedure, are under laboratory control. No target analytes were detected, indicating that the analytical system was free of contamination and no sample results are affected.

Method Spikes

Method spikes, also known as laboratory control samples (LCS), are a solution of method analytes at known concentrations that are spiked into ultra high purity compressed air or reagent grade water (depending on sample matrix) and analyzed to assess the accuracy of the method. The results are reported as the percent recovery of each spiked compound. Four out of seven method spike recoveries for vinyl chloride had slightly high recoveries. Seven project sample results for vinyl chloride were qualified as "J+" estimated potentially biased high. One out of seven method spike recoveries had slightly low recoveries for o-xylene. Two project sample results for o-xylene were qualified as "J-" estimated potentially biased low.

Matrix Spikes

A matrix spike is a solution of method analytes at known concentrations that are spiked into a field sample. The results of the analysis of the spiked sample are then reported as a percent

recovery of each spiked compound. this percent recovery is used to assess bias caused by matrix interference. Two matrix spike samples (one pair) were analyzed by Method SW8260, and all recoveries (with the exception of trichlorethene) were within acceptable limits, indicating good overall accuracy. One matrix spike sample had slightly high recovery for trichloroethene and the TCLP extract sample was flagged "J+" estimated potentially biased high.

Surrogate Spikes

Surrogates were added to every sample, blank, and method spike to monitor both the performance of the analytical system and the effectiveness of the method in recovering the compounds of interest for each sample matrix. The percent recovery of the surrogate spike compounds were compared to the recovery objectives established for the method. All surrogate spike results met acceptable limits, indicating that there were no problems associated with recovering target analytes using these methods.

Duplicates

Laboratory Duplicates

Laboratory duplicates are repeated, independent analyses of the same sample, by the same analyst, at essentially the same time and under the same conditions. The sample is split in the laboratory, and each fraction is carried through all stages of sample preparation and analysis. Duplicate analyses are used to assess the precision of each analytical method. Sample POLY-CIN-024 had a laboratory duplicate performed. Eight pairs of results RPD's were all less than 16%, which is within acceptable limits for precision and indicates good overall reproducibility.

Matrix Spike/Matrix Spike Duplicates

A matrix spike/matrix spike duplicate (MS/MSD) is used to assess precision of the method for the specific sample matrix. One MS/MSD pair was analyzed by Method SW8260. The RPD's were all less than 11 percent, which is within acceptable limits for precision, and indicates good overall reproducibility.

Field Duplicates

Field duplicate samples are used to evaluate the precision of the total measurement system and estimate variability in the entire sampling and analytical process. The sample identified as POLY-AEX-006 was a field duplicate of sample POLY-AEN-005. Analysis of this sample by method TO-14 and Method 18 modified yielded five analyte pairs for which RPD's could be

calculated. All the calculated RPD's met the data quality objectives, indicating good precision and reproducibility.

Holding Times

Method protocol specifies the maximum amount of time a sample can be stored before analysis (i.e., the sample "holding time"). All samples were analyzed within the required holding times from sample collection to analysis.

Calibration Ranges

Ten samples for trichloroethene by Method TO-14 exceeded the instrument calibration range, but were within linear range. These results were "J+" flagged estimated potentially biased high.

TABLE 1. Qualified Data

METHOD	ANALYTE	REASON	QUAL FLAG	SAMPLE ID	
TO-14	Trichloroethene	Calibration range exceeded, within linear range.	J+	POLY-VW-315-001 POLY-AIN-002 POLY-AEN-007 POLY-AIN-090 POLY-AEN-012	POLY-BIN-016 POLY-BIN-018 POLY-BEN-021 POLY-CIN-024 POLY-CEN-025
TO-14	Vinyl chloride	Method spike had a high recovery.	J+	POLY-AIN-002 POLY-AEN-003 POLY-AEN-007	POLY-AIN-090 POLY-BIN-020 POLY-AEN-012
TO-14	o-Xylene	Method spike had a low recovery.	J-	POLY-AIN-013	POLY-AEN-014
SW8260	Trichloroethene	Matrix spike had high recovery.	J+	POLY-APN-015	

POLYMER FILTER MEDIA RESULTS

Sample name: POLY-VW-315-001					Sample name:			
DC:9/7/95					DC:			
DA:9/8/95					DA:			
9509057A-01A								
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	ND	1100	2200		Vinyl chloride			
1,1-Dichloroethene	ND	1100	2200		1,1-Dichloroethene			
Freon 113	ND	1100	2200		Freon 113			
cis-1,2-Dichloroethene	26,000	1100	2200		cis-1,2-Dichloroethene			
Chloroform	2,600	1100	2200		Chloroform			
1,1,1-Trichloroethane	ND	1100	2200		1,1,1-Trichloroethane			
Benzene	5,000	1100	2200		Benzene			
Trichloroethene	1,200,000E* J+	1100	2200		Trichloroethene			
Toluene	1,900	1100	2200		Toluene			
Tetrachloroethene	ND	1100	2200		Tetrachloroethene			
m,p-Xylene	7,500	1100	2200		m,p-Xylene			
o-Xylene	6,900	1100	2200		o-Xylene			
Acetone	ND	4400	2200		Acetone			
9509507B								
Modified Method 18					Modified Method 18			
Vinyl chloride	110	3100	2.2		Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AIN-002					Sample name:POLY-AEN-003			
DC:9/12/95					DC:9/12/95			
DA:9/13/05					DA:9/13/95			
9509097A-01A					9509097A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	2900** J+	1,600	3,200		Vinyl chloride	2000** J+	290	570
1,1-Dichloroethene	ND	1,600	3,200		1,1-Dichloroethene	390	290	570
Freon 113	ND	1,600	3,200		Freon 113	ND	290	570
cis-1,2-Dichloroethene	19,000	1,600	3,200		cis-1,2-Dichloroethene	3,500	290	570
Chloroform	2,200	1,600	3,200		Chloroform	700	290	570
1,1,1-Trichloroethane	ND	1,600	3,200		1,1,1-Trichloroethane	ND	290	570
Benzene	4,300	1,600	3,200		Benzene	ND	290	570
Trichloroethene	660,000E* J+	1,600	3,200		Trichloroethene	71,000	290	570
Toluene	1,800	1,600	3,200		Toluene	ND	290	570
Tetrachloroethene	ND	1,600	3,200		Tetrachloroethene	ND	290	570
m,p-Xylene	6,900	1,600	3,200		m,p-Xylene	ND	290	570
o-Xylene	5,300	1,600	3,200		o-Xylene	ND	290	570
Acetone	ND	6,400	3,200		Acetone	ND	1,100	570
Modified Method 18					Modified Method 18			
9509097B-01A					9509097B-02A			
Vinyl chloride	3,700	130	2.6		Vinyl chloride	4,000	130	2.6
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								
** Vinyl chloride method spike recovery out high 138%								
Flag vinyl chloride J+ estimated potential high bias.								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AIN-004					Sample name:POLY-AEN-005			
DC:9/13/95					DC:9/13/95			
DA:9/14/95					DA:9/14/95			
9509107A-01A					9509107A-02A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor			(ppbv)	(ppbv)	factor
Vinyl chloride	ND	2,500	4,900		Vinyl chloride	ND	1,300	2,500
1,1-Dichloroethene	ND	2,500	4,900		1,1-Dichloroethene	ND	1,300	2,500
Freon 113	ND	2,500	4,900		Freon 113	ND	1,300	2,500
cis-1,2-Dichloroethene	23,000	2,500	4,900		cis-1,2-Dichloroethene	12,000	1,300	2,500
Chloroform	2,700	2,500	4,900		Chloroform	1,300	1,300	2,500
1,1,1-Trichloroethane	ND	2,500	4,900		1,1,1-Trichloroethane	ND	1,300	2,500
Benzene	4,700	2,500	4,900		Benzene	1,900	1,300	2,500
Trichloroethene	780,000	2,500	4,900		Trichloroethene	340,000	1,300	2,500
Toluene	ND	2,500	4,900		Toluene	ND	1,300	2,500
Tetrachloroethene	ND	2,500	4,900		Tetrachloroethene	ND	1,300	2,500
m,p-Xylene	7,900	2,500	4,900		m,p-Xylene	ND	1,300	2,500
o-Xylene	6,400	2,500	4,900		o-Xylene	ND	1,300	2,500
Acetone	ND	9,800	4,900		Acetone	ND	5,000	2,500
Modified Method 18					Modified Method 18			
9509107B-01A					9509107B-02A			
Vinyl chloride	2,800	250	5		Vinyl chloride	1,200	130	2.5

POLYMER FILTER MEDIA RESULTS

					FIELD DUPLICATE			
Sample name:POLY-AEN-005					Sample name:POLY-AEX-006			
DC:9/13/95					DC:9/13/95			
DA:9/14/95					DA:9/14/95			
9509107A-02A					9509107A-03A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor	[RPD]		(ppbv)	(ppbv)	factor
Vinyl chloride	ND	1,300	2,500		Vinyl chloride	ND	1,800	3,500
1,1-Dichloroethene	ND	1,300	2,500		1,1-Dichloroethene	ND	1,800	3,500
Freon 113	ND	1,300	2,500		Freon 113	ND	1,800	3,500
cis-1,2-Dichloroethene	12,000	1,300	2,500	[45.2]	cis-1,2-Dichloroethene	19,000	1,800	3,500
Chloroform	1,300	1,300	2,500	[42.4]	Chloroform	2,000	1,800	3,500
1,1,1-Trichloroethane	ND	1,300	2,500		1,1,1-Trichloroethane	ND	1,800	3,500
Benzene	1,900	1,300	2,500	[51.0 OK]	Benzene	3,200	1,800	3,500
Trichloroethene	340,000	1,300	2,500	[45.5]	Trichloroethene	540,000	1,800	3,500
Toluene	ND	1,300	2,500		Toluene	ND	1,800	3,500
Tetrachloroethene	ND	1,300	2,500		Tetrachloroethene	ND	1,800	3,500
m,p-Xylene	ND	1,300	2,500		m,p-Xylene	ND	1,800	3,500
o-Xylene	ND	1,300	2,500		o-Xylene	ND	1,800	3,500
Acetone	ND	5,000	2,500		Acetone	ND	7,000	3,500
Modified Method 18					Modified Method 18			
9509107B-02A					9509107B-03A			
Vinyl chloride	1,200	130	2.5	[45.2]	Vinyl chloride	1,900	130	2.5

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AEN-007					Sample name:POLY-AEN-008			
DC:9/14/95					DC:9/15/95			
DA:9/14/95					DA:9/16/95			
9509107A-04A					9509134A-01A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	2000** J+	1,800	3,500		Vinyl chloride	ND	1,900	3,800
1,1-Dichloroethene	ND	1,800	3,500		1,1-Dichloroethene	ND	1,900	3,800
Freon 113	ND	1,800	3,500		Freon 113	ND	1,900	3,800
cis-1,2-Dichloroethene	26,000	1,800	3,500		cis-1,2-Dichloroethene	18,000	1,900	3,800
Chloroform	2,900	1,800	3,500		Chloroform	1,900	1,900	3,800
1,1,1-Trichloroethane	ND	1,800	3,500		1,1,1-Trichloroethane	ND	1,900	3,800
Benzene	5,200	1,800	3,500		Benzene	4,000	1,900	3,800
Trichloroethene	900,000E* J+	1,800	3,500		Trichloroethene	670,000	1,900	3,800
Toluene	ND	1,800	3,500		Toluene	3,200	1,900	3,800
Tetrachloroethene	ND	1,800	3,500		Tetrachloroethene	ND	1,900	3,800
m,p-Xylene	ND	1,800	3,500		m,p-Xylene	14,000	1,900	3,800
o-Xylene	ND	1,800	3,500		o-Xylene	5,500	1,900	3,800
Acetone	ND	7,000	3,500		Acetone	ND	7,600	3,800
Modified Method 18					Modified Method 18			
9509107B-04A					9509134B-01A			
Vinyl chloride	2,600	130	2.5		Vinyl chloride	3,200	130	2.5
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								
** Vinyl chloride method spike recovery out high 132%								
Flag vinyl chloride J+ estimated potential high bias.								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AIN-090					Sample name:POLY-AEN-010			
DC:9/18/95					DC:9/18/95			
DA:9/19/95					DA:9/19/95			
9509168A-01A					9509168A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	2600 J+	1,700	3,400		Vinyl chloride	ND	2,700	5,400
1,1-Dichloroethene	ND	1,700	3,400		1,1-Dichloroethene	ND	2,700	5,400
Freon 113	ND	1,700	3,400		Freon 113	ND	2,700	5,400
cis-1,2-Dichloroethene	21,000	1,700	3,400		cis-1,2-Dichloroethene	19,000	2,700	5,400
Chloroform	2,300	1,700	3,400		Chloroform	ND	2,700	5,400
1,1,1-Trichloroethane	ND	1,700	3,400		1,1,1-Trichloroethane	ND	2,700	5,400
Benzene	3,400	1,700	3,400		Benzene	3,500	2,700	5,400
Trichloroethene	760,000E J+	1,700	3,400		Trichloroethene	650,000	2,700	5,400
Toluene	ND	1,700	3,400		Toluene	ND	2,700	5,400
Tetrachloroethene	ND	1,700	3,400		Tetrachloroethene	ND	2,700	5,400
m,p-Xylene	8,700	1,700	3,400		m,p-Xylene	14,000	2,700	5,400
o-Xylene	7,500	1,700	3,400		o-Xylene	14,000	2,700	5,400
Acetone	11,000	6,800	3,400		Acetone	ND	11,000	5,400
Modified Method 18					Modified Method 18			
					9509168B-02A			
Vinyl chloride					Vinyl chloride	3,000	50	2.7
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								
** Vinyl chloride method spike recovery out high 142%								
Flag vinyl chloride J+ estimated potential high bias.								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AIN-011					Sample name:POLY-AEN-012			
DC:9/19/95					DC:9/19/95			
DA:9/20/95					DA:9/20/95			
9509168A-03A					9509168A-04A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor			(ppbv)	(ppbv)	factor
Vinyl chloride	3100** J+	2,300	4,500		Vinyl chloride	1900** J+	1,500	3,000
1,1-Dichloroethene	ND	2,300	4,500		1,1-Dichloroethene	ND	1,500	3,000
Freon 113	ND	2,300	4,500		Freon 113	ND	1,500	3,000
cis-1,2-Dichloroethene	20,000	2,300	4,500		cis-1,2-Dichloroethene	22,000	1,500	3,000
Chloroform	2,300	2,300	4,500		Chloroform	2,600	1,500	3,000
1,1,1-Trichloroethane	ND	2,300	4,500		1,1,1-Trichloroethane	ND	1,500	3,000
Benzene	3,800	2,300	4,500		Benzene	3,600	1,500	3,000
Trichloroethene	660,000	2,300	4,500		Trichloroethene	730,000E* J+	1,500	3,000
Toluene	ND	2,300	4,500		Toluene	ND	1,500	3,000
Tetrachloroethene	ND	2,300	4,500		Tetrachloroethene	ND	1,500	3,000
m,p-Xylene	9,300	2,300	4,500		m,p-Xylene	4,000	1,500	3,000
o-Xylene	7,200	2,300	4,500		o-Xylene	4,200	1,500	3,000
Acetone	ND	9,000	4,500		Acetone	ND	6,000	3,000
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								
** Vinyl chloride method spike recovery out high 142%								
Flag vinyl chloride J+ estimated potential high bias.								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-AIN-013					Sample name:POLY-AEN-014			
DC:9/20/95					DC:9/20/95			
DA:9/21/95					DA:9/22/95			
9509180A-01A					9509180A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	ND	2,200	4,400		Vinyl chloride	ND	2,200	4,400
1,1-Dichloroethene	ND	2,200	4,400		1,1-Dichloroethene	ND	2,200	4,400
Freon 113	ND	2,200	4,400		Freon 113	ND	2,200	4,400
cis-1,2-Dichloroethene	16,000	2,200	4,400		cis-1,2-Dichloroethene	17,000	2,200	4,400
Chloroform	ND	2,200	4,400		Chloroform	ND	2,200	4,400
1,1,1-Trichloroethane	ND	2,200	4,400		1,1,1-Trichloroethane	ND	2,200	4,400
Benzene	2,500	2,200	4,400		Benzene	2,700	2,200	4,400
Trichloroethene	520,000	2,200	4,400		Trichloroethene	590,000	2,200	4,400
Toluene	ND	2,200	4,400		Toluene	ND	2,200	4,400
Tetrachloroethene	ND	2,200	4,400		Tetrachloroethene	ND	2,200	4,400
m,p-Xylene	6,200	2,200	4,400		m,p-Xylene	4,100	2,200	4,400
o-Xylene	4,000 J-	2,200	4,400		o-Xylene	2,300 J-	2,200	4,400
Acetone	ND	8,800	4,400		Acetone	ND	8,800	4,400
Modified Method 18					Modified Method 18			
9509180B-01A					9509180B-02A			
Vinyl chloride	2,200	110	2.2		Vinyl chloride	2,600	220	4.4
	FD 2,200	110	2.2					
o-Xylene spike recovery low 61Q flag data								
flag J- estimated potential low bias								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-BIN-016					Sample name:POLY-BEN-017			
DC:9/22/95					DC:9/22/95			
DA:9/25/95					DA:9/25/95			
9509209A-01A					9509209A-02A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor			(ppbv)	(ppbv)	factor
Vinyl chloride	ND	700	1,400		Vinyl chloride	640	4.3	8.6
1,1-Dichloroethene	ND	700	1,400		1,1-Dichloroethene	19	4.3	8.6
Freon 113	ND	700	1,400		Freon 113	51	4.3	8.6
cis-1,2-Dichloroethene	12,000	700	1,400		cis-1,2-Dichloroethene	13	4.3	8.6
Chloroform	1,000	700	1,400		Chloroform	ND	4.3	8.6
1,1,1-Trichloroethane	ND	700	1,400		1,1,1-Trichloroethane	15	4.3	8.6
Benzene	2,000	700	1,400		Benzene	ND	4.3	8.6
Trichloroethene	390,000E* J+	700	1,400		Trichloroethene	560	4.3	8.6
Toluene	ND	700	1,400		Toluene	ND	4.3	8.6
Tetrachloroethene	ND	700	1,400		Tetrachloroethene	ND	4.3	8.6
m,p-Xylene	3,900	700	1,400		m,p-Xylene	4	4.3	8.6
o-Xylene	3,300	700	1,400		o-Xylene	ND	4.3	8.6
Acetone	ND	2,800	1,400		Acetone	ND	17.0	8.6
Modified Method 18					Modified Method 18			
9509209B-01A								
Vinyl chloride	1,600	110	2.2		Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-BIN-018					Sample name:POLY-BEN-019			
DC:9/25/95					DC:9/25/95			
DA:9/26/95					DA:9/25/95			
9509234A-01A					9509234A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	1,200	1,100	2,100		Vinyl chloride	1,400	700	1,400
1,1-Dichloroethene	ND	1,100	2,100		1,1-Dichloroethene	ND	700	1,400
Freon 113	ND	1,100	2,100		Freon 113	ND	700	1,400
cis-1,2-Dichloroethene	11,000	1,100	2,100		cis-1,2-Dichloroethene	10,000	700	1,400
Chloroform	ND	1,100	2,100		Chloroform	750	700	1,400
1,1,1-Trichloroethane	ND	1,100	2,100		1,1,1-Trichloroethane	ND	700	1,400
Benzene	1,500	1,100	2,100		Benzene	ND	700	1,400
Trichloroethene	380,000E* J+	1,100	2,100		Trichloroethene	150,000	700	1,400
Toluene	ND	1,100	2,100		Toluene	ND	700	1,400
Tetrachloroethene	ND	1,100	2,100		Tetrachloroethene	ND	700	1,400
m,p-Xylene	4,000	1,100	2,100		m,p-Xylene	ND	700	1,400
o-Xylene	3,200	1,100	2,100		o-Xylene	ND	700	1,400
Acetone	ND	4,200	2,100		Acetone	ND	2,800	1,400
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-BIN-020					Sample name:POLY-BEN-021			
DC:9/27/95					DC:9/27/95			
DA:9/28/95					DA:9/28/95			
9509272A-01A					9509272A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	980** J+	700	1,400		Vinyl chloride	ND	1,400	2,800
1,1-Dichloroethene	ND	700	1,400		1,1-Dichloroethene	ND	1,400	2,800
Freon 113	ND	700	1,400		Freon 113	ND	1,400	2,800
cis-1,2-Dichloroethene	7,000	700	1,400		cis-1,2-Dichloroethene	15,000	1,400	2,800
Chloroform	ND	700	1,400		Chloroform	1,500	1,400	2,800
1,1,1-Trichloroethane	ND	700	1,400		1,1,1-Trichloroethane	ND	1,400	2,800
Benzene	980	700	1,400		Benzene	1,900	1,400	2,800
Trichloroethene	220,000	700	1,400		Trichloroethene	500,000E* J+	1,400	2,800
Toluene	750	700	1,400		Toluene	ND	1,400	2,800
Tetrachloroethene	ND	700	1,400		Tetrachloroethene	ND	1,400	2,800
m,p-Xylene	2,000	700	1,400		m,p-Xylene	ND	1,400	2,800
o-Xylene	1,600	700	1,400		o-Xylene	ND	1,400	2,800
Acetone	ND	2,800	1,400		Acetone	ND	5,600	2,800
Modified Method 18					Modified Method 18			
					9509272B-02A			
Vinyl chloride					Vinyl chloride	1,200	110	2.2
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								
** Vinyl chloride method spike recovery out high 135%								
Flag vinyl chloride J+ estimated potential high bias.								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-BIN-022					Sample name:POLY-BEN-023			
DC:9/29/95					DC:9/29/95			
DA: NOT ANALYZED					DA:NOT ANALYZED			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride					Vinyl chloride			
1,1-Dichloroethene					1,1-Dichloroethene			
Freon 113					Freon 113			
cis-1,2-Dichloroethene					cis-1,2-Dichloroethene			
Chloroform					Chloroform			
1,1,1-Trichloroethane					1,1,1-Trichloroethane			
Benzene					Benzene			
Trichloroethene					Trichloroethene			
Toluene					Toluene			
Tetrachloroethene					Tetrachloroethene			
m,p-Xylene					m,p-Xylene			
o-Xylene					o-Xylene			
Acetone					Acetone			
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-CIN-024					Sample name:POLY-CEN-025			
DC:9/29/95					DC:9/29/95			
DA:10/2/95					DA:10/2/95			
9509314A-03A					9509314A-04A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	2,200	1,100	2,200		Vinyl chloride	2,500	1,400	2,800
1,1-Dichloroethene	ND	1,100	2,200		1,1-Dichloroethene	ND	1,400	2,800
Freon 113	ND	1,100	2,200		Freon 113	ND	1,400	2,800
cis-1,2-Dichloroethene	23,000	1,100	2,200		cis-1,2-Dichloroethene	26,000	1,400	2,800
Chloroform	2,200	1,100	2,200		Chloroform	2,500	1,400	2,800
1,1,1-Trichloroethane	ND	1,100	2,200		1,1,1-Trichloroethane	ND	1,400	2,800
Benzene	2,800	1,100	2,200		Benzene	3,500	1,400	2,800
Trichloroethene	640,000E* J+	1,100	2,200		Trichloroethene	690,000E* J	1,400	2,800
Toluene	1,600	1,100	2,200		Toluene	ND	1,400	2,800
Tetrachloroethene	ND	1,100	2,200		Tetrachloroethene	ND	1,400	2,800
m,p-Xylene	7,200	1,100	2,200		m,p-Xylene	ND	1,400	2,800
o-Xylene	6,300	1,100	2,200		o-Xylene	ND	1,400	2,800
Acetone	ND	4,400	2,200		Acetone	ND	5,600	2,800
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								

POLYMER FILTER MEDIA RESULTS

					LAB DUPLICATE			
Sample name:POLY-CIN-024					Sample name:POLY-CIN-024			
DC:9/29/95					DC:9/29/95			
DA:10/2/95					DA:10/2/95			
9509314A-03A					9509314A-03B			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor	RPD		(ppbv)	(ppbv)	factor
Vinyl chloride	2,200	1,100	2,200	9.5	Vinyl chloride	2,000	1,100	2,200
1,1-Dichloroethene	ND	1,100	2,200		1,1-Dichloroethene	ND	1,100	2,200
Freon 113	ND	1,100	2,200		Freon 113	ND	1,100	2,200
cis-1,2-Dichloroethene	23,000	1,100	2,200	4.4	cis-1,2-Dichloroethene	22,000	1,100	2,200
Chloroform	2,200	1,100	2,200	4.7	Chloroform	2,100	1,100	2,200
1,1,1-Trichloroethane	ND	1,100	2,200		1,1,1-Trichloroethane	ND	1,100	2,200
Benzene	2,800	1,100	2,200	15.4	Benzene	2,400	1,100	2,200
Trichloroethene	640,000E* J+	1,100	2,200	6.5	Trichloroethene	600,000E* J+	1,100	2,200
Toluene	1,600	1,100	2,200	6.6	Toluene	1,500	1,100	2,200
Tetrachloroethene	ND	1,100	2,200		Tetrachloroethene	ND	1,100	2,200
m,p-Xylene	7,200	1,100	2,200	1.4	m,p-Xylene	7,300	1,100	2,200
o-Xylene	6,300	1,100	2,200	0	o-Xylene	6,300	1,100	2,200
Acetone	ND	4,400	2,200		Acetone	ND	4,400	2,200
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			
* TCE exceeds calibration range, but within linear range								
flag J+ estimated biased high								

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-CIN-026					Sample name:POLY-CEN-027			
DC:9/0/95					DC:9/30/95			
DA:10/3/95					DA:10/3/95			
9510006A-01A					9510006A-02A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor			(ppbv)	(ppbv)	factor
Vinyl chloride	2,400	1,400	2,700		Vinyl chloride	1,600	1,400	2,800
1,1-Dichloroethene	ND	1,400	2,700		1,1-Dichloroethene	ND	1,400	2,800
Freon 113	ND	1,400	2,700		Freon 113	ND	1,400	2,800
cis-1,2-Dichloroethene	25,000	1,400	2,700		cis-1,2-Dichloroethene	24,000	1,400	2,800
Chloroform	2,500	1,400	2,700		Chloroform	2,500	1,400	2,800
1,1,1-Trichloroethane	ND	1,400	2,700		1,1,1-Trichloroethane	ND	1,400	2,800
Benzene	3,300	1,400	2,700		Benzene	2,600	1,400	2,800
Trichloroethene	720,000	1,400	2,700		Trichloroethene	690,000	1,400	2,800
Toluene	2,200	1,400	2,700		Toluene	2,100	1,400	2,800
Tetrachloroethene	ND	1,400	2,700		Tetrachloroethene	ND	1,400	2,800
m,p-Xylene	9,500	1,400	2,700		m,p-Xylene	19,000	1,400	2,800
o-Xylene	8,200	1,400	2,700		o-Xylene	22,000	1,400	2,800
Acetone	ND	5,400	2,700		Acetone	ND	5,600	2,800
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			

POLYMER FILTER MEDIA RESULTS

Sample name:POLY-CIN-028					Sample name:POLY-CEN-029			
DC:10/2/95					DC:10/2/95			
DA:10/3/95					DA:10/3/95			
9510006A-03A					9510006A-04A			
TO-14	result	dl	dilution		TO-14	result	dl	dilution
	(ppbv)	(ppbv)	factor			(ppbv)	(ppbv)	factor
Vinyl chloride	2,000	1,400	2,700		Vinyl chloride	2,100	1,400	2,700
1,1-Dichloroethene	ND	1,400	2,700		1,1-Dichloroethene	ND	1,400	2,700
Freon 113	ND	1,400	2,700		Freon 113	ND	1,400	2,700
cis-1,2-Dichloroethene	25,000	1,400	2,700		cis-1,2-Dichloroethene	27,000	1,400	2,700
Chloroform	2,400	1,400	2,700		Chloroform	2,500	1,400	2,700
1,1,1-Trichloroethane	ND	1,400	2,700		1,1,1-Trichloroethane	ND	1,400	2,700
Benzene	2,700	1,400	2,700		Benzene	3,700	1,400	2,700
Trichloroethene	660,000	1,400	2,700		Trichloroethene	720,000	1,400	2,700
Toluene	1,600	1,400	2,700		Toluene	1,900	1,400	2,700
Tetrachloroethene	ND	1,400	2,700		Tetrachloroethene	ND	1,400	2,700
m,p-Xylene	9,600	1,400	2,700		m,p-Xylene	5,400	1,400	2,700
o-Xylene	7,200	1,400	2,700		o-Xylene	3,800	1,400	2,700
Acetone	ND	5,400	2,700		Acetone	ND	5,400	2,700
Modified Method 18					Modified Method 18			
Vinyl chloride					Vinyl chloride			

POLYMER FILTER MEDIA RESULTS

Sample name: POLY-CIN-030					Sample name:POLY-CEN-031			
DC:10/4/95					DC:10/4/95			
DA:10/5/95					DA:10/5/95			
9510034A-01A					9510034A-02A			
TO-14	result (ppbv)	dl (ppbv)	dilution factor		TO-14	result (ppbv)	dl (ppbv)	dilution factor
Vinyl chloride	ND	1,100	2,220		Vinyl chloride	ND	2,200	4,300
1,1-Dichloroethene	ND	1,100	2,220		1,1-Dichloroethene	ND	2,200	4,300
Freon 113	ND	1,100	2,220		Freon 113	ND	2,200	4,300
cis-1,2-Dichloroethene	13,000	1,100	2,220		cis-1,2-Dichloroethene	24,000	2,200	4,300
Chloroform	1,300	1,100	2,220		Chloroform	2,200	2,200	4,300
1,1,1-Trichloroethane	ND	1,100	2,220		1,1,1-Trichloroethane	ND	2,200	4,300
Benzene	1,700	1,100	2,220		Benzene	3,100	2,200	4,300
Trichloroethene	350,000	1,100	2,220		Trichloroethene	750,000	2,200	4,300
Toluene	ND	1,100	2,220		Toluene	ND	2,200	4,300
Tetrachloroethene	ND	1,100	2,220		Tetrachloroethene	ND	2,200	4,300
m,p-Xylene	4,400	1,100	2,220		m,p-Xylene	6,300	2,200	4,300
o-Xylene	3,300	1,100	2,220		o-Xylene	4,400	2,200	4,300
Acetone	ND	4,400	2,220		Acetone	ND	8,600	4,300
Modified Method 18					Modified Method 18			
9510034B-01A					9510034B-02A			
Vinyl chloride	1,200	220	4.4	RPD	Vinyl chloride	3,200	110	2.1
(field duplicate)	970	220	4.4	22%				

POLYMER FILTER MEDIA RESULTS

Sample name: POLY-APN-015					Sample name: POLY-APN-015			
DC:9/22/95					DC:9/22/95			
Leachate date:9/29/95					Leachate date:9/29/95			
DA:10/9/95					DA:10/9/95			
9510034A-01A					9510034A-01A			
SW8260	result	dl	dilution		SW8260	result	dl	dilution
	(ug/L)	(ug/L)	factor			(ug/L)	(ug/L)	factor
Benzene	ND	503	1,000		Benzene	60	50.3	100
2-Butanone (MEK)	ND	2,320	1,000		2-Butanone (MEK)	ND	232.0	100
Carbon Tetrachloride	ND	566	1,000		Carbon Tetrachloride	ND	56.6	100
Chlorobezene	ND	591	1,000		Chlorobezene	ND	59.1	100
Chloroform	ND	678	1,000		Chloroform	ND	67.8	100
1,2-Dichloroethane	5,830	791	1,000		1,2-Dichloroethane	6,550	79.1	100
1,1-Dichloroethene	ND	802	1,000		1,1-Dichloroethene	ND	80.2	100
Tetrachloroethene	ND	674	1,000		Tetrachloroethene	ND	67.4	100
Trichloroethene	15,600	438	1,000		Trichloroethene	14,900**J	43.8	100
Vinyl chloride	ND	738	1,000		Vinyl chloride	ND	73.8	100
**TCE method spike recovery out high126%					We will use only the 100 dilution results			
flag J+ estimated potential high bias								

APPENDIX D

Advanced Water Systems PetroLOK™ PL22 Product Information

14207 NE 193rd Place Woodinville, WA 98072
Phone: 206/485-0670 Fax: 206/486-4983

INTRODUCTION

To

PetroLØK™ PL 22

INTRODUCTION

A new water filtration media revolutionizes the removal of petroleum hydrocarbons and other volatile organic compounds (VOC's) from waste streams.

Analytical data on the performance of this new media called **PetroLOK™ PL22** indicate the product is superior to granular activated carbon (GAC) for many applications, and that PL22 represents a new **"best available technology"** for the removal of hydrocarbons from water.

The PL22 filtration media is a unique blend of proprietary polymers and virgin activated carbon designed to capture remaining hydrocarbons and VOC's after removal of free hydrocarbon product. The filtration media's unique properties lowers treatment costs and drastically reduces retention times.

Unlike activated carbon which removes contaminants through **adsorption**, the proprietary polymer in PetroLOK™ PL22 **absorbs** and **bonds** contaminants. The polymer is capable of absorbing 10-15 times its weight of hydrocarbon. The proprietary blend can absorb and bond up to 4 times its own weight in contaminants. As a result, although the pound-per-pound cost of PL22 media is higher than GAC, analyses show that 14 to 20 times less of the PL22 is required to treat the same amount of water.

Another major benefit provided by PetroLOK™ PL22 filtration media is the speed with which it removes hydrocarbons and VOC's from water. Analyses conducted on waste water containing levels of total hydrocarbons and VOC's ranging from 10,000 PPM to 1 PPB show that the PL22 media removes most hydrocarbons and VOC's within the first three minutes of exposure to the media. Additional contaminant removal occurs as retention times increase. Analyses of effluent from activated carbon indicate that an average retention time of 15 to 25 minutes is required to achieve similar levels of contaminant removal.

BACKGROUND

Water is essential to every living thing. Two-thirds of the human body is water. Three-fourths of the earth is covered by water, but only 3% of this water is fresh (non-salty). Two-thirds of this water is locked into the polar ice caps and not currently available for consumption. This leaves less than 1% for human and industrial uses.

Total daily water consumption in the U.S. is approximately 500 billion gallons. Industry uses approximately 43% of this total. It takes nearly 60,000 gallons to produce one ton of steel and almost 70,000 gallons to produce one ton of paper. Agricultural use of water accounts for 47% of the total. The usage quickly adds up when one realizes it takes 115 gallons of water to grow the wheat for one loaf of bread, 2,000 gallons to produce a pound of beef, and an amazing 120 gallons to produce a single egg.

The remaining 10% (50 billion gallons) is for personal use. This figure represents approximately 100 gallons per person per day used for gardening and cleaning. Only 2 to 3 quarts per person per day is actually used for drinking and cooking. The average family of four requires only 2 to 3 gallons of drinkable water per day.

Nature's Water Cycle

Pure water is vital to our future. Fresh pure water evaporating from the oceans begins the earth's cycle. This pure water vapor passes over land, interacts with air currents and temperature variations, and eventually falls to the earth as precipitation in the form of rain or snow.

As the rain and melting snow run across the surface of the land, debris, chemicals, pesticides, and hydrocarbons are carried along, making their way back to the oceans by way of streams, lakes and rivers. Water which soaks into the ground becomes part of the vast underground "sea" which dissolves rocks and decomposes organics. These underground waters are known as aquifers, and they, too, move to the oceans. Some aquifers move five to ten feet per year, and others move more than five miles per year.

Eventually all the water that falls as rain or snow makes its way back to the oceans carrying silt, dirt, debris, and millions of tons of waste accumulated through this process.

THE PROBLEM

Is enough pure water available today and in the future? Over 700 organic chemicals have been identified in various public water supplies; many are carcinogenic, many others are suspect. Most contaminants are man-made. In 1985, American industry produced over 250 million tons of hazardous waste or approximately one ton for every American. By 1993, this had grown to over 500 million tons. At that time only about 10% of all this hazardous waste was properly disposed of The remaining 90% was burned, dumped, improperly burned, or simply poured into water disposal systems. Since then, improper disposal has been significantly reduced, but it is still a major concern.

Over the years, a significant portion of polluted waste water is contaminated by petroleum products and by-products. The illegal discharge of petroleum products (hydrocarbons) has become the big issue of today. Tighter controls have been written and enforcement is stricter. Marine discharge, leaking fuel tanks, industrial discharge, storm water run-off, pipelines and accidental spills are now closely monitored for compliance. Companies are scrambling to find economic ways to clean water, air, and soil before discharge to meet the tighter controls and avoid citations and/or fines. What can be done?

EXISTING TECHNOLOGY

The most common method for attempting to remove floating, dissolved and emulsified hydrocarbons from water is by filtering the water through granular activated carbon (GAC). Other technologies include air stripping (introduce air into water stream), ultra filtration (still often uses activated carbon as final polisher), and bio-remediation (temperature-sensitive and generally slow).

When carbon granules are burned under controlled conditions, a high purity carbon surface with a micropore structure results. Such "activated" carbons have a surface area of over 10,000 square feet per gram (over 120 acres per pound). This high purity, non-polar surface with many micropores and capillaries removes organic materials by a process of adsorption (a surface collection of liquids, does not become part of and can be removed). Since "like" adsorbs "like", non-polar organics are readily held by carbon. Aromatic and aliphatic hydrocarbons such as benzene, gasoline, diesel fuel, oil, grease, toluenes,

and xylenes fall into this category. Also included are many organics associated with pesticides, cleaning compounds, and natural organics.

One of the major problems with activated carbon is that it is fouled almost immediately by dissolved or emulsified hydrocarbons. At its best, GAC is 25% efficient. However, when wet, actual data shows GAC to have a 1% to 15% efficiency, and after being fully exhausted, can allow hydrocarbons to leach back into the water stream. In general, the capacity of the best activated carbon is to adsorb 25% of its own weight in contaminants. While most activated carbon can be regenerated, each regeneration reduces its effective capacity. Most commonly used activated carbon for filtering waste water is in the 1 to 15% capacity range.

ENHANCED TECHNOLOGY

In December, 1992, a new filtration media, PetroLOK™ PL22, was created. It is a proprietary blend of an advanced hydrophobic elastomeric polymer and activated carbon capable of absorbing up to 4 times its own weight in hydrocarbon contaminants. The polymer itself has been used since 1991 to absorb and bond hydrocarbons in spill response situations. It is so effective that it can remove hydrocarbons to not detect in minutes and bonds the hydrocarbons permanently. It was not usable in a filter because it would almost immediately plug. In late 1992, it was discovered that if mixed with other ingredients and blended in a special way with activated carbon, it became a sensational filter media.

The results are startling. This media stands alone and has no equal as a replacement for activated carbon in filtration applications.

Consider The Following:

PetroLOK™ PL22 media has at minimum 20 times the capacity for hydrocarbon pickup (if 100 lbs of activated carbon will pickup 20 lbs, 100 lbs of PL22 can pick up to 400 lbs of petro hydrocarbons).

PetroLOK™ PL22 media on average is 400% efficient, where activated carbon at its best is only 25% efficient.

PetroLOK™ PL22 media reduces the cost of filtration treatment by 30% or more. Even greater savings are realized when labor and disposal costs associated with dealing with 20+ times the volume of activated carbon are calculated.

PetroLOK™ PL22 media can remove most hydrocarbon contaminants to acceptable discharge requirements with retention time as low as three minutes.

PetroLOK™ PL22 filtration media is a blend of proprietary polymers and activated carbon designed to capture hydrocarbons and VOC's after removal of free hydrocarbon product. The polymer is hydrophobic (hates water), and can absorb (take in; transform into a different form; bond) up to 15 times it own weight of hydrocarbons.

The proprietary mixture can remove up to 4 times its own weight of hydrocarbons. This translates to both efficiency and capacity. PetroLOK™ PL22 can be as much as 40 times more efficient than GAC.

After removal from the filtering process and sitting for 24 hours, the polymer is so effective it will leach hydrocarbon contaminants from the activated carbon and bond them. The resultant bonded mix has passed TCLP testing. The expended media can then be land filled or incinerated according to local requirements.

A caution at this point, PetroLOK™ PL22 does not work the same way as activated carbon. When the media is loaded to approximately 80% of capacity, the back pressure through the filter bed essentially doubles. This indicates it is time to change the media. The waste stream should not break through. The useful capacity of PetroLOK™ PL22 is 1,816,000 mg of hydrocarbon per one pound of media (4:1 ratio by weight). However, absorption ratios will vary when filtering chlorinated solvents and VOC's. The ratios can vary from 4:1 to 1:1.

Contaminants Removed

The following contaminants can be successfully removed from waste water using PetroLOK™ PL22 filter media. The critical variable for degree of removal is residence time (contact time with the media bed). As a rule of thumb, to get contaminants to less than 1 PPB requires 3 minutes for BTEX, 4 minutes for light chlorinated hydrocarbons, and 5 minutes for mixed chlorinated hydrocarbons at levels above 20 PPM.

1,1,2-Trichloroethane
1.1-Dichloroethane
1,1-Dichloroethylene
1,2,3-Trichloropropane
1,2-Dichloroethane
Flourens (some)
THM's
Toluene Compounds
Toxaphene
Trichloroethylene (TCE)
Chlorine
DBCP
Diedrin
Diesel Fuel
Endrin
Pyrens
Acetone
Benzene
BHC's
Benzo Compounds
Napthalenes
Nitro Compounds
PCB's
Petroleum Oils
Phenol Compounds (some)
Phthalates
1,2-Dichloropropane
Gasoline
Halogenated Hydrocarbons
Lindane
Methylene Chloride
Xylenes

COST CONSIDERATIONS

Depending on volume and efficiency ratings of activated carbon, the cost of PetroLOK™ PL22 is from 10 to 20 times higher than activated carbon. The price of the product, however, is only relevant as an input for determining the cost of removal of contaminants. The first consideration to any user is comparison to current cost. If hydrocarbon contaminated waste water is simply pumped and hauled away for treatment and disposal, the cost can run as high as $3.00/gal., as low as $.28/gal, with a national average running around $.40/gal.

The cost of activated carbon in a pump-and-treat system can run from $.75/lb. to $2.50/lb. depending on the quality and the efficiency of the product. It is generally found that the less efficient the activated carbon, the lower the cost per pound. While activated carbon can be regenerated, the efficiency generally is reduced with each regeneration. A major consideration here is the cost of handling and transport. If the

activated carbon is 20% efficient, one needs 20 times more GAC than PetroLOK™ PL22 to remove the same level of contaminants. If the activated carbon is 10-12% efficient (national average), one needs up to 40 times more.

Calculate the cost of removing 100 mg/l of TPH (Total Petroleum Hydrocarbons) from a waste stream to not detectable levels. One hundred pounds (100 lbs.) of PetroLOK™ PL22 media can clean 477,900 gallons of waste water to not detectable. The cost to treat each gallon would then be the retail cost of PetroLOK™ PL22 divided by 477,900 gallons of wastewater. To accomplish the same removal in activated carbon, 100 pounds could treat 24,000 gallons of waste water at 20% efficiency or 12,000 gallons at 10% efficiency. The treatment cost would then be the retail cost of the activated carbon in dollars divided by either 24,000 or 12,000. Generally, the PetroLOK™ PL22 will average 30% lower in material cost.

The total cost, however, must take into account the handling and disposal of the used product. If 100 pounds of PetroLOK™ PL22 will filter 477,900 gallons of water contaminated to 100 PPM, it will take from 2,000 to 4,000 lbs of activated carbon to do the same. This is 20 to 40 times the quantity of material to receive, handle and remove for regeneration or disposal. This is where the significant cost reduction of PetroLOK™ PL22 is evident.

CURRENT APPLICATIONS

A. An installation at American Marine Corporation (AMC) in New Orleans pumps bilge's and degasses barges in their operation. They were running an OWS on the bilge water, then paying to have the water hauled away. AMC's net cost was $.34/gal. after oil recovered was sold. The waste water contained 370 PPM of dissolved hydrocarbons. After filtering through a 10 GPM system, the effluent contained less than 4 PPM hydrocarbons. AMC received a permit form the State of Louisiana Department of Environmental Quality to discharge into the Mississippi. The cost for this treatment is less than $.01/gal.

B. Kentucky Marine of Greenville, MS installed a similar system at their location and received a discharge permit from the State of Mississippi to discharge into the Mississippi River.

C. Delta Auto, Alabama, manufacturing automotive parts. A 10 GPM filtration system utilizing PL22 has been installed and is meeting the discharge regulation that are specified by the state of Alabama.

D. Alcoa has installed a 10 GPM system for removal of hydrocarbons and PCB's from contaminated water which also includes an OWS, a clarifier, particulate filter and aeration.

E. Ryder Truck is filtering waste water with a 10 GPM system.

F. An Exxon tank farm has a 15 GPM system to reduce BTEX levels to discharge requirements.

G. A power company in Maryland and Virginia is filtering waste water from transformers to remove PCB's.

H. A shipping company on the Great Lakes is installing bilge treatment systems on all of its ships to meet the recent Great Lakes standard of 5 PPM. This is soon to be lowered to 0 PPM. Their potential fine for non-compliance is $7,000/day. PetroLOK™ PL22 meets their requirements.

I. Reese Air Force base in Texas has installed a system to remove 45 PPB of a chlorinated solvent to ND (< 1 PPB). The theoretical bed life is estimated at 65 years.

J. The Department of Environmental Regulations (DER) of Pennsylvania has recommended the use of PetroLOK™ PL22 to filter a holding pond containing 200,000 gallons of water contaminated with 15 PPB of benzene.

K. Colonna's Shipyards 100 GPM filtration system analytical test data shows effluent water at not detectable PPM off TPH. Have received discharge permit to discharge water into the Elizabeth River. Virginia regulation is 5 PPM allowable.

L. Taylor Environmental Products, Inc. Louisville, Mississippi manufactures Oil Water Separators (OWS) that utilize PL22 for final polish before discharge to meet federal discharge requirements.

M. Amoco Offshore oil platform has installed a 75 GPM system to meet the water discharge requirements. Maximum allowable discharge is 29 mg/L, the discharge water being filtered through PL22 is at <3 mg/L.

N. Iowa D.O.T. installed three 40 GPM filtration systems to handle water discharge requirements at maintenance facilities.

O. Limited Leasing, St. Louis, operates riverboats on the Mississippi. They have installed a 10 GPM filtration system to meet the water discharge requirements to get by U.S.C.G.

P. Apogee Environmental has purchased two mobile filtration systems. One 10 GPM system and one 100 GPM system. Both designed to remove TPH and lead.

SUMMARY

PetroLOK™ PL22 filtration media is quickly being recognized as the best available technology (BAT) for applications requiring the removal of floating, dissolved or emulsified hydrocarbons from waste water by filtration.

1. It is extremely efficient.

2. It has a high capacity (each pound will absorb up to 4 pounds of hydrocarbon).

3. It is not subject to breakthrough when used properly.

4. It is fast (reduced retention times mean lower bed volumes required).

5. It saves money compared to other filtration treatments.

ADDENDUM - ENVIRONMENTAL REGULATIONS

Allowable levels of hydrocarbon discharge vary from city-to-city and state-to-state. Discharge regulation's for the most part are getting tighter and enforcement stricter. Today we are faced with two types of discharge requirements.

I. Industrial Discharge: Water contamination regulated by waste water management Total Oil and Grease (TOG) Total Petroleum Hydrocarbon (TPH). The discharge requirements for waste water management will vary from city-to-city. Example: 1)Washington State varies by location, range 12 25 mg\l to 100mg\l; 2) Louisville, Kentucky 10 PPM/TOG; 3) Ft. Wayne, Indiana 400 PPM/TOG; 4) Boston, Massachusetts 30 PPM/TOG.

II. Industrial Discharge: US EPA adopted regulations for storm water discharges from certain industrial sites known as National Pollutant Discharge Elimination System (NPDES), November 1990.

The NPDES identifies industrial discharge as toxic pollutants effluent and requires industry to meet the maximum contaminant levels (MCL) for specific pollutants.

NPDES REQUIREMENTS have been considered by EPA for parking lot run-off and a few states have now brought forth regulations requiring filtration for stromwater run off.

Either case requires that new technologies which can process large or small volumes of waste water or storm run-off at reasonable cost are necessary. PetroLOK™ PL22 is one such technology which can be used by public water systems, large industrial users, small business owners and environmental and engineering consultants looking for economic alternatives.

FEDERAL REGULATIONS AND ENFORCEMENT

Allowable concentrations of hydrocarbons and volatile organic compounds (VOC's) are continuing to be reduced. Twenty years ago the regulations were considered very lax compared to the discharge regulation of today However, the regulations today for acceptable discharge will not be acceptable tomorrow.

US EPA is continuing to regulate the acceptable levels of water contamination and have incorporated enforcement of regulations by the following acts:

- Resource Conservation and Recovery Act (RCRA) * Clean Air Act (CAA)
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)
- Endangered Species Act
- Rivers and Harbors Act of 1899 (The Refuse Act)
- Marine Protection, Research and Sanctuaries Act of 1972 (The Ocean Dumping Act)

Resource Conservation And Recovery Act.
42 U.S.C. Sections 6901 et seq. govern the generation, transportation, storage, treatment and disposal of hazardous waste. Section 6928 (d) states that to knowingly store, treat, transport or dispose of hazardous waste in violation of the statute, implementing regulations, or one's permit is punishable by 5 years in jail and $50,000/day of violation. To knowingly violate the Act's record keeping, reporting, or manifesting provisions is punishable by 2 years in jail and $50,000/day of violation. To knowingly place another in imminent danger of death or serious bodily harm is punishable by 15 years in jail and a $250,000 fine.

Clean Air Act (CAA).
42 U.S.C. Sections 7401 et seq. govern the emission of hazardous air pollutants. Section 7413 (c) states that to knowingly violate almost any provision on inspections, new source, performance standards, or permit provisions is punishable by 5 years in jail and a $250,000 fine. To knowingly violate the Act's recordkeeping, reporting, or manifesting provisions is punishable by 2 years in jail and $250,000/day of violation. Negligent release of a hazardous air pollutant that places another in imminent danger of death or serious bodily harm is punishable by 1 year in jail and a $250,000 fine. Knowingly, rather than negligent, release is punishable by 15 years in jail and a $250,000 fine.

Clean Water Act (CWA, also known as the Federal Water Pollution Control Act).
33 U.S.C. Sections 1251 et seq. govern the discharge of pollutants into waters of the United States. Section 1319 (c) states that negligence violation of almost any provision, for example, on permit effluent limitations and wetland permits is punishable by 1 year in jail and a $25,000. Knowing, rather than negligent, violation is punishable by 3 years in jail and a $250,000 fine. Knowing that which places another in imminent danger of death or serious bodily harm is punishable by 15 years in jail and a $250,000 fine.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund"). 42 U.S.C. Sections 9061 et seq. govern the notification and cleanup of spill or releases of hazardous substances into the environment. Section 9603 (b) states that knowing failure of a person in charge to report unpermitted release of certain hazardous substance is punishable by 3 years in jail and a $250,000 fine.

Endangered Species Act.
16 U.S.C. Section 1540 (b) states that to knowingly violate almost any provisions of the Act, for example, prohibiting adverse impact, (broadly defined) or their designated habitat is punishable by 6 months in jail and $25,000 fine.

Rivers an Harbors Act of 1899, (the Refuse Act). 33 U.S.C. Sections 401 et seq. govern any construction near or obstruction of U.S. navigable waters. Sections 407 & 411 state that an unpermitted discharge of any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable body of water or into any tributary of any navigable water is punished by 1 year in jail and a $2,500 fine.

Marine Protection, Research, and Sanctuaries Act of 1972, (the Ocean Dumping Act).
33 U.S.C. Sections 1401 et seq. govern dumping of material into the ocean. Section 1411 and 1415 (b) state that unpermitted transportation of any material for the purpose of dumping it into ocean waters is punishable by a fine of not more than $50,000, or imprisonment for not more than one year, or both.

AN AWS, INC. FILTRATION TECHNOLOGY PRODUCT

PetroLOK™ PL22

(PATENT PENDING)

PetroLOK™ PL22 is a non-toxic, non-corrosive environmentally friendly water filtration media.

PetroLOK™ PL22 filtration media will not only **ADSORB** hydrocarbon contamination, but also **LOCKS IN THE HYDROCARBON**, thus reducing the risk of hydrocarbon leaching during water filtering applications.

PetroLOK™ PL22 combines the effect of **adsorb** and **absorb** for maximum efficiency. **PetroLOK™ PL22** can be up to **FORTY (40)** times more efficient than using typical carbon adsorbents.

PetroLOK™ PL22 FACT SHEET

WEIGHT BY VOLUME	One pound equals 96 cubic inches. One cubic foot equals 18 pounds
ABSORPTION CAPACITY	1,816,000 milligrams hydrocarbon per one pound PL22
SPECIFIC GRAVITY	.932 proximate
PH SPECIFICATIONS	Neutral (6.5 to 7)
STORAGE	Keep free of contamination
VOLATILITY BEFORE USE	None
VOLATILITY AFTER USE	Varies with flammability of liquid bonded
DISPOSAL	Caution should be exercised. Dispose of in accordance with federal, state and local laws for bonded liquid
PACKAGING	**PetroLOK™ PL22** is packaged in 14 pound bags (.77 cubic feet) or 900 pound bulk containers (50 cubic feet)
TOXICITY	Non-Toxic, Non-Hazardous, Non-Corrosive
NOTICE	All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof in not guaranteed.

Standards for Calculating Liquid Phase Filter Beds for PetroLOK PL22

Contaminant Generation

(1)a 3.8 (liters/gal) x _____ (GPM) x _____ (PPM) x _____ (min/day) = _____ (Daily Contaminant Generation) mg

(1)b 3.8 (liters/gal) x _____ (GPD) x _____ (PPM) = _____ (Daily Contaminant Generation) mg

Filter Bed Calculations by Minutes of Residence Time

(2) _____ (GPM) x _____ (* Residence Time in Min) ÷ 7.48 (Gal. per cu. ft.) = _____ (Bed Volume) cubic feet

(3) _____ (Bed Volume in cubic ft.) x 18 (Density PCF of PL22) = _____ (Bed Weight PL22 in pounds)

(4) _____ (Bed Weight PL22 in pounds mg/lb.) x 1,816,000 (Capacity of PL22) = _____ (Bed Absorb Capacity Generation) ÷ _____ (Daily Contaminant) = _____ (Bed Life) days

Cost Per Gallon Treated

(5) _____ (Bed Weight PL22 in lbs.) x _____ (Retail $ / lb.) ÷ _____ (Bed Life in Days) ÷ _____ (GPD or GPM x 1440) = _____ (Cost in $ / gallon)

*Residence Time — Minutes that the waste flow is exposed to the adsorb/absorb/bonding function of the media bed.
BTEX - 3 min.
Light chlorinated hydrocarbons - 4 min.
Mixed chlorinated hydrocarbons or levels above 20 PPM - 5 min.

International Note:
x = multiply
÷ = divide

CURRENT APPLICATIONS

In less than 1 year PetroLOK PL22 has been used in most of these applications

- Airports
- Asphalt Cleaning
- Auto Repair Shops
- Car Washes
- Coal Mines
- Gas Stations
- Ground Water Remediation
- Hydroelectric Dams
- Industrial Laundries
- Marine Industry - Bilge's
- Metal Plating Industry
- Military Bases
- Municipalities
- Navy Ships
- Oil Refineries
- Parts Washing Firms
- Plastics Industry
- Power Companies
- Printing Industry
- Rail Yards
- Steel Mills
- Waste Water Treatment Plants

PERFORMANCE DATA

The following represents actual applications at installations around the country. While the data is summarized, the actual data is available upon request. the filtration systems are being used to meet or exceed discharge regulations.

Final polish after OWS (oil-water separator) removing BTEX and reducing TPH below 15 mg/l.

CUSTOMER		Influent	Effluent	Date
American Marine				
New Orleans, LA.	Total Oil & Grease	370. mg/l.	3.8 mg/l.	3/93
Bilge Water Application	Bilge Water & BTEX	54.3 mg/l.	12.4 mg/l.	5/21/93
Test Report MSI-001	Toluene	5.6 ug/l.	ND	5/21/93
ETC/Gulf South Labs	Ethylbenzene	10 ug/l.	ND	5/21/93
	Xylene	26 ug/l.	ND	5/21/93

Final polish to remove BTEX and reduce TPH below 15 mg/l.

		Influent	Effluent	Date
Mississippi Marine				
Greenville, MS.	Acetone	500 ug/l.	140 ug/l.	3/11/93
*AM Test ID 93-A003582**	2-Butanone (MEK)	250 ug/l.	85 ug/l.	3/11/93
*AM Test ID 93-A003584***	Benzene	950 ug/l.	< 5 ug/l.	3/11/93
VOC (EPA 624)	Toluene	190 ug/l.	< 5 ug/l.	3/11/93
	Xylene	900 ug/l.	< 1 ug/l.	3/11/93
	Final Oil & Grease		4 mg/l.	4/9/93

Cleaning wash water which contains detergent to below limit of 200

Winona Van Norman		**Influent**	**Effluent**	**Date**
Winona State University	Total Oil & Grease	1048 mg/l.	137 mg/l.	6/21/93
Winona, MN.				

Reduce total oil, grease and BTEX

Dakota Barge		**Influent**	**Effluent**	**Date**
St. Paul, MN.	Total Oil & Grease	110 mg/l.	< 2 mg/l.	9/14/93
FID Flame Ionization Detector	Benzene	24 mg/l.	ND	9/14/93
	Toluene	52 ug/l.	5 ug/l.	9/14/93
	Ethylbenzene	18 ug/l.	ND	9/14/93
	Xylenes	57 ug/l.	7 ug/l.	9/14/93
	FID Scan-Gasoline	< 5 mg/l.	< 5 mg/l.	9/14/93
	FID Scan #2 Fuel Oil	6.4 mg/l.	1.4 mg/l.	9/14/93

Reduce TPH in flight deck drains to below 5 mg/l.

US Navy-Catapult Drain		**Influent**	**Effluent**	**Date**
NNS Laboratory Services	Total Oil & gas	66.7 mg/l.	1.4 mg/l.	12/14/93
Lab #93-015610	(EPA Method 413.1)			

Reduce VOC level in wash water from printing press.

Printing Company		**Influent**	**Effluent**	**Date**
ID #93-003190	Xylenes	11,000 ug/l	900 ug/l	3/9/93
(VOC EPA 624)				

Tests to determine effect of retention time on VOC removal from waste stream. All data is in ug/l (parts/billion). Each column represents retention time in bed.

Holiand, MI.		**Influent**	**3 Min.**	**4 Min.**	**5 Min.**	**7 Min.**
Test Performed to Reduce VOC's	Benzene	21	< 1	< 1	< 1	< 1
Job #8468	Bromodichloromethane	69	36	< 1	< 1	< 1
6/9/93	Chloroform	19	35	< 1	< 1	< 1
	1,2-Dichlorobenzene	33	< 1	< 1	< 1	< 1
	1,1-Dichloroethane	2722	1467	1	17	31
	1,1-Dichloroethene	2930	1990	21	26	13
	Ethyl Benzene	154	31	< 1	< 1	< 1
	Methylene Chloride	18450	15050	160	120	123
	Tetrachloroethane	4370	1625	11	2	3
	Toluene	670	101	< 1	< 1	< 1
	1,1,1-Trichloroethane	20695	14620	871	216	151
	1,1,2-Trichloroethane	585	245	5	<1	<1
	Trichloroethene	2803	740	2	3	32
	Xylenes	1147	150	< 3	< 3	< 3

Tests to determine effect of retention time on VOC removal from waste stream. All data is in ug/l (parts /billion). Each column represents retention time in bed.

Holland MI.		Influent	3 Min.	5 Min.	7 Min.
Test Performed to Reduce VOC's	Benzene	21	< 1	< 1	< 1
Job #8606 (ENHANCED PL22	Bromodichloromethane	69	< 1	< 1	< 1
FORMULATION)	Chloroform	19	2	2	1
8/23/93	1,2-Dichlorobenzene	33	< 1	< 1	< 1
	1,1-Dichloroethane	2722	12	21	16
	1,1-Dichloroethene	2930	14	14	< 5
	Ethyl Benzene	154	< 1	< 1	< 1
	Methylene Chloride	18450	46	48	43
	Tetrachloroethane	4370	24	24	34
	Toluene	670	< 1	< 1	< 1
	1,1,1-Trichloroethane	20695	8	11	20
	1,1,2-Trichloroethane	585	6	< 1	< 1
	Trichloroethene	2803	< 1	< 1	< 1
	Xylenes	1147	< 3	< 3	< 3

REMEDIATION FIELD RESULTS

E.S.I.

Indianapolis, IN.

		Influent	Effluent	Date
Marathon Oil Co.				
Tank Farm	TSS	21 mg/l.	0 mg/l.	10/3/94
Test Method EPA 624	TPH	12.8 mg/l.	< 0.1 mg/l.	10/3/94
	Benzene	0.211 mg/l.	< .0001 mg/l.	10/3/94
	Toluene	0.192 mg/l.	< .0001 mg/l.	10/3/94
Flow Rate: 40 GPM	Ethyl Benzene	0.106 mg/l.	< .0001 mg/l.	10/3/94
	Xylene	0.765 mg/l.	< .001 mg/l.	10/3/94
GM Plant				
Test Method EPA 624	PCB's	40 mg/l.	ND	10/3/94
	Chromium (1)	0.02 mg/l.	< 0.01 mg/l.	10/3/94
	Lead	0.16 mg/l.	< 0.01 mg/l.	10/3/94
Flow Rate: 30 GPM	TSS		5 mg/l.	10/3/94
	FOG		< 5 mg/l.	10/3/94

REMEDIATION PROJECT
SAN FRANCISCO BAY AREA

Containment pond filling with runoff from heavy spring rains. A 50 gpm filtration system using PetroLOK PL-22 was utilized to remove influent contaminant as noted by testing to discharge levels into San Francisco Bay. First test sampling April 11, 1995, last test sampling May 23, 1995. Total approximate gallons of water filtered through PL-22, 2.1 million.

Brown & Caldwell
San Francisco, CA.

	Influent	Effluent	Date
C-1,2 - Dichloroethene	6.3 ug/l.	< 0.5 ug/l.	4/11/95
Trichloroethene	18 ug/l.	< 0.5 ug/l.	4/11/95
1,1 Dichloroethene	.69 ug/l.	< 0.5 ug/l.	5/23/95
T-1,2 - Dichloroethene	.56 ug/l.	< 0.5 ug/l.	5/23/95
C-1,2 - Dichloroethene	61 ug/l.	5.0 ug/l.	5/23/95
1,1,1 Trichloroethene	.54 ug/l.	< 0.5 ug/l.	5/23/95
Trichloroethene	24 ug/l.	< 0.5 ug/l.	5/23/95

MARINE APPLICATIONS

Colonna's Shipyard
Norfolk, VA

		Influent	Effluent	Date
Bilge & Degreasing Water	TPH	50 mg/l.	ND	4/1/95
Flow Rate 100 GPM, Test Method EPA 413.1				

AMOCO

		Influent	Effluent	Date
Off Shore Oil Platform	W.S.O.	100 mg/l.	< 3 mg/l.	3/24/95
Flow Rate 75 GPM	(Water Soluble Organic)			

SHEEN VAC
Sheen Vac filtration equipment utilizes PetroLOK PL-22 media to remove and absorb hydrocarbons from navigable surface waters..

California Regional Water Quality Control Board Acceptance of SHEEN VAC, 11/21/94.

SLIC: Discharge of Surface Oil Spill Cleanup Water NPDES not needed to remove sheens of small volumes on surface waters when water is filtered through SHEEN VAC equipment.

APOGEE ENVIRONMENTAL
PetroLOK™ PL22 FILTRATION SYSTEM

		Influent	Effluent	Date
Ft. Wayne	BTEX	22,060 ug/l.	ND	3/15/95
Remediation Site	Lead (Pb)	14 ug/l.	ND	3/15/95
Total Water process 6,000 gal.				
St. Louis	BTEX	470 ug/l.	1.9 ug/l.	3/15/95
Remediation Site	Lead (Pb)	7 ug/l.	ND	3./15/95
Total Water Process 1,100 gal.				

TRUCK / HEAVY EQUIPMENT SERVICE CENTER

		Influent	Effluent	Date
Ryder Truck				
Test Method EPA 413.1	TOG	50 mg/l.	ND	12/1/94
Test Method	Acetone	71 ug/l.	ND	12/1/94

Application PL22 as polishing filter for Oil Water Separator (OWS)

REESE AIR FORCE BASE

		Influent	Effluent	Date
Reese AFB				
Test Method EPA 524.2	TCE	50 ug/l.	< 0.5 ug/l.	10/29/93 & 2/3/94

To meet Maximum Contaminant Level (MCL) as published in the Safe Drinking Water Act. Title 40 Code of Federal Regulations, Part 141.23